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CALIFORNIA STATE DAIRY COW COMPETITION

1916-18

BY

F. W. WOLL

Apparatus Used by Supervisors of Dairy Tests.

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CALIFORNIA STATE DAIRY COW COMPETITION, 1916-18

By F. W. WOLL

During the past dozen years, production tests of pure-bred dairy cows have been conducted as a regular routine by the Animal Husbandry Division of the Department of Agriculture of the University of California, in coöperation with the various dairy breed associations. Similar tests are conducted by the agricultural colleges or experiment stations in other states and form the basis for the Advanced-Registry system of American dairy breed associations. The importance of these tests to the breeders directly concerned and to our dairy industry in general can hardly be overestimated; they make progress possible in breeding dairy cattle and determine largely the value of both the cows tested and their near relatives. It is inconceivable that cows producing over 1000 pounds of butter fat in a year or over 40 pounds in seven days would have been developed but for the stimulus furnished by the Advanced Registry tests, and the definite knowledge of the capacity of cows for dairy production that they have supplied.

These tests have had a profound influence also on the breeding and production of grade cows and for the advancement of the dairy industry, through the placing of pure-bred bulls from females of proved capacity for a large dairy production at the head of grade or common dairy herds. Nevertheless, this system of testing has so far been of interest mainly to breeders of pure-bred cattle. Appreciating the importance of production tests to the general dairy farmer, and desiring to bring home to many farmers their value in the management of all dairy herds, the California Agricultural Experiment Station arranged in the fall of 1915 for the conduct of a dairy cow competition for California farmers. The plan of conducting the competition gradually took form during the following winter, and after conferences with breeders of dairy cattle and others interested, it was decided to have it commence on November 1, 1916, and continue until the end of February, 1918. The competition was accordingly conducted between the dates stated; the results have now been verified and compiled, and as complete an account of the same as practicable is presented in this bulletin.

Rules Governing the Competition.—The competition was conducted as a part of the regular work of the Advanced-Registery testing done by this experiment station, and the main rules governing these tests were adopted for the conduct of the competition as well. These rules and the general plan of conducting the competition are given in Circular No. 153 of the California Agricultural Experiment Station, to which reference is here made.[1]

The record period decided upon for cows in the competition was ten months, which is the average normal lactation period of dairy cows. The reasons for adopting this period, instead of one for a full year, are stated in the circular cited above. Later developments in connection with Advanced-Registry tests of different breed associations have further emphasized the wisdom of a ten-month record period. The production by the cows for each month was determined on the basis of tests of one or two days' duration (one day for grade or common cows, two days for pure-breds, in accordance with the rules of the various breed associations), and the milk records furnished by the owners, which were checked up in various ways. The accumulated credits for ten consecutive months make the records of production of milk and butter fat for the cows in the competition.

Prizes Offered.—In order to make the competition of special interest to dairy farmers, numerous prizes for high records of production were provided. This was made possible through the liberality of breeders and others interested in the advancement of California dairying, who subscribed to a large prize fund or donated cash prizes or special prizes of pure-bred bull calves, cream separators, feed, milking machines, trophies, etc. The value of all prizes offered aggregated over $7500.

List of Contributors.—The following list gives the names of the contributors to the cash prize fund and of special prizes:

(A) *Cash Prize Fund.*—Alexander and Kellogg, Suisun; Mrs. Anita M. Baldwin, Santa Anita; Balfour, Guthrie & Co., San Francisco; "Calf-Way" Milker Co., San Francisco; California Central Creameries, San Francisco; De Laval Separator Co., New York City, New York; W. H. Dupee, Santee; J. S. Gibson Co., Williams; F. M. Helm, Fresno; Miss M. M. Holdridge, Modesto; Larrowe Milling Co., Los Angeles; Millbrae Dairy, Millbrae; A. W. Morris & Sons Corp., Woodland; B. E. Nixon, Yountville; Pacific Dairy Review, San Francisco; Palo Alto Stock Farm, Palo Alto; Sacramento Clearing House, Sacramento; Somers & Co., San Francisco; Sperry Flour Co., Stockton; State Holstein Breeders' Association, Chino; State Jersey Breeders' Association, Stockton; F. Stenzel, San Lorenzo; Western Creameries Co., San Francisco; G. W. Wilder, Redlands.

[1] Announcement of the California State Dairy Cow Competition, 1916–18, by F. W. Woll, July, 1916, 8 pp.

(B) *Special Prizes.*—Pure-bred bull calves: K. W. Abbott, Milpitas; J. W. Clise, Seattle, Washington; Dr. J. W. Henderson, Berkeley; A. B. Humphrey, Mayhews; N. B. Locke Co., Lockeford; C. G. McFarland, Tulare; E. B. McFarland, San Mateo; W. H. Saylor, San Francisco.

Feed: Larrowe Milling Co., Los Angeles.

Cream separators: Anker-Holth Mfg. Co., Port Huron, Michigan; Associated Mfrs. Co., Waterloo, Iowa; Baker, Hamilton & Pacific Co., San Francisco; De Laval Dairy Supply Co., San Francisco; Empire Cream Separator Co., Bloomfield, New Jersey; International Harvester Co., San Francisco.

Milking machines: "Calf-Way" Milker Co., San Francisco; Sharples Separator Co., San Francisco.

Fig. 1.—Trophies awarded in the competition. Upper row: Cups offered by Holstein-Friesian Association of America, and by Scott, Magner & Miller, San Francisco (center). Lower row: Trophies offered by American Jersey Cattle Club (outside), American Guernsey Cattle Club, and by Pacific Rural Press (in center).

Trophies and medals: American Guernsey Cattle Club, Peterboro, New Hampshire; American Jersey Cattle Club, New York City, New York; Holstein-Friesian Association of America, Brattleboro, Vermont; Scott, Magner & Miller, San Francisco.

Special cash prizes: Barber & Thomson Co., Los Angeles; California Cultivator, Los Angeles; McAlister & Sons, Chino; C. L. Hughes, Sacramento; Modesto Creamery, Modesto; Pacific Rural Press, San Francisco; the Country Life Department of the Sacramento Bee, Sacramento.

In addition, two especially engraved gold medals were provided, by the Department of Agriculture of the University of California, the cost of which was defrayed from donations to the prize fund received in excess of the cash prizes originally decided upon. The total number of prizes offered was 94, of which all but three series of monthly and special prizes were awarded for ten-month records. The

monthly prizes were awarded during the progress of the competition for the highest production of a grade cow, or the highest average production of five grades during each month. The detailed list of prizes will be found in the appendix in connection with the awards.

As an encouragement for the small dairyman and for owners of grade or common cows, the work of cow-testing associations was recognized by the award of substantial prizes for the largest average production of herds of different sizes. Records obtained in associations for a full year were considered in the award of these prizes, and only a general supervision over the production of the herds was exercised by the experiment station. All other tests were conducted by the regular supervisors of dairy tests employed by the station in connection with Advanced-Registry testing, or by testers in charge of cow-testing associations, under similar rules to those governing the Advanced-Registry tests, with the exception of the duration of the testing period, which as a rule, was one day only in the case of tests of grade herds.

Entries in the Competition.—Entries in the competition were open to owners of all kinds of cows in the state, pure-breds, grades, and "common" cows. In view of the large proportion of cows of the latter kind in the state (95 per cent or more), special efforts were made to interest their owners, and to secure a large representation of such cows. In this respect, we were very successful, as will be noted from the tabulation given below. The competition opened on May 1, 1916, with 73 entries. Month by month more cows were entered, until by the time the entries closed on May 1st, 1917, the number had reached 817. Of this number, 402 cows were in herds belonging to cow-testing associations entered in competition for the special prizes provided for such herds, while 415 were entered in competition for ten-month, and incidentally, for monthly records. Table I shows the entries in the competition made by different breeders and the representation of the different breeds.

It will be seen that of the total number of cows entered, 231 were pure-breds and 586 were grade cows. The different breeds were represented as follows in the former: Holsteins, 111; Jerseys, 77; Guernseys, 41; Ayrshires, 2. The grades were classed as follows, according to breeds: Holsteins, 193; Jerseys, 306; Guernseys, 23; and mixed breeding (mainly Shorthorn grades), 64. Considering both pure-breds and grades, the various breeds were, therefore, represented as follows among the cows entered in the competition: Jerseys, 383; Holsteins, 304; Guernseys, 64; and Ayrshires, 2.

TABLE I

ENTRIES IN THE CALIFORNIA STATE DAIRY COW COMPETITION

Breeder	Pure-breds				Grades				Total	
	H.	J.	G.	Ay.	J.	H.	G.	Mixed	Pure bred	Grades
Abbott, K. W.	4	....	....	....	1	26	....	2	4	29
Baldwin, Anita M.	17	....	....	....	....	....	....	....	17	....
Beebe, Floyd	....	....	....	....	....	2	....	12	....	14
Bibens, A. M.	1	....	....	....	....	....	....	....	1	....
Bohnett Bros.	....	....	....	....	4	1	1	8	....	14
Bomberger, J. M.	....	4	....	....	5	....	....	....	4	5
Christen, J. M.	1	....	....	....	....	11	....	....	1	11
Coppini, J. W.	....	10	....	....	12	....	....	....	10	12
Cornwell, H. E.	6	....	....	....	....	....	....	....	6	....
Dupee, W. H.	....	....	4	....	....	....	....	....	4	....
Elliott-Brant Rancho	....	....	9	....	....	....	....	....	9	....
Goodall, J. A.	....	1	....	....	....	....	....	....	1	....
Grice, C. R.	....	....	3	....	....	....	....	....	3	....
Gross, H. G.	....	8	....	....	....	....	....	....	8	....
Guill, J. H., Jr.*	1	....	....	....	....	13	....	....	1	13
Guise, H. J.	....	....	....	....	1	....	....	....	....	1
Henderson, J. W.	....	....	4	....	....	....	....	....	4	....
Hewins, Homer, Jr.	1	....	....	....	....	....	....	....	1	....
Holge, E. M.	1	....	....	....	....	....	....	....	1	....
Higdon, W. J.†	2	....	5	....	....	....	....	....	7	....
Hollow-Hill Farm	....	....	4	....	....	....	12	....	4	12
Iversen, Iver	....	....	....	....	9	2	4	....	....	15
Kell, F. J.‡	2	....	....	....	....	8	....	....	2	8
Kounias, S. G.	4	....	....	....	....	....	....	....	4	....
McFarland, E. B.	....	....	....	1	....	....	....	....	1	....
McFarland, C. G.	....	4	....	....	....	....	....	....	4	....
McLouth & Dado	....	8	....	....	....	....	....	....	8	....
McLouth, Chas. M.	....	2	....	....	....	....	....	....	2	....
McAlister & Sons	5	....	....	....	....	....	....	....	5	....
Mealey, S. A.	....	....	....	....	....	1	....	....	....	1
Miller, Guy H.	....	14	....	....	....	....	....	....	14	....
Morris, A. W. & Sons	26	....	....	....	....	....	....	....	26	....
Napa State Hospital	....	....	....	....	....	22	....	....	....	22
Pacific St. Corp.	3	....	....	....	....	....	....	....	3	....
Palo Alto Stock Farm	12	....	10	....	....	....	....	....	22	....
Rexholme Farms	1	....	....	....	....	1	....	....	1	1
So. Cal. St. Hosp.	....	....	....	....	....	10	....	....	....	10
Stenzel, F.	....	....	....	....	....	15	....	....	....	15
Trigg, G. E.	....	....	....	....	14	....	....	1	....	15
Univ. of Calif.	9	8	2	1	....	....	1	1	20	2
Van Derpoel, F. H.	....	6	....	....	....	....	....	....	6	....
Leland Stan. Univ.	9	....	....	....	....	....	....	....	9	....
Williams, S. F.	....	1	....	....	....	....	....	....	1	....
Wulff, F. B.	....	....	....	....	1	....	....	....	....	1
Total	105	66	41	2	47	112	18	24	214	201

ENTRIES FOR COW-TESTING ASSOCIATION PRIZES

Breeder	Pure-breds				Grades				Total	
	H.	J.	G.	Ay.	J.	H.	G.	Mixed	Pure bred	Grades
Ambort, Aux	....	....	....	....	....	29	....	....	....	29
Beebe, Floyd	1	....	....	....	....	....	....	13	1	13
Coppini & Coppini	....	....	....	....	49	....	....	11	....	60
Coppini, J. W.	....	10	....	....	12	....	....	....	10	12
Darnell, C.	....	....	....	....	....	10	....	....	....	10
Guill, J. H.	1	....	....	....	2	19	....	....	1	21
Hansen John	....	....	....	....	101	....	....	....	....	101
Iversen, Iver	....	....	....	....	19	4	5	9	....	37
Kell, F. J.	1	....	....	....	....	17	....	....	1	17
Terkelsen, W.	3	1	....	....	41	2	....	6	4	49
G. E. Trigg	....	....	....	....	35	....	....	1	....	36
Total	6	11	....	....	259	81	5	40	17	385
Grand totals	111	77	41	2	306	193	23	64	231	586

NOTE.—H., Holsteins; J., Jerseys; G., Guernseys; Ay., Ayrshires.

* Grades later sold to Leonard Hess, Tudor, Cal.

† Guernseys later sold to A. J. Welch, Redwood City, Cal.

‡ Grades later sold to D. J. Sullivan & Co., Stockton, Cal.

Most of the herds competing for the cow-testing association prizes were located in two sections; viz., Humboldt and Imperial counties, mainly in the former; only one herd outside of these counties continued to the end. The herds entered for ten-month records, on the other hand, were located in twenty-nine different counties scattered all over the state, from Humboldt and Butte counties in the north to San Diego and Imperial counties in the south, and represented greatly differing types of dairy farming. Forty-nine different breeders entered their cows in the competition, but for a variety of causes, more or less unexpected at the beginning, the war, labor shortage, business changes, etc., a number found it necessary to withdraw. Two hundred and forty-six cows owned by twenty-nine different breeders completed ten-month records, viz., twenty-one breeders of Jersey, Holstein, Guernsey, and Ayrshire cattle, and eight owners of grade dairy herds. A number of breeders of pure-bred cattle also entered grade cows owned by them. Through the coöperation of the cow-testing associations we were furnished with yearly records for 365 cows in nine different herds, making 608 cows in thirty-four different herds in all, whose records of production have been compiled for periods of ten months or of one year, and form the basis upon which the awards of prizes offered in the competition are made.

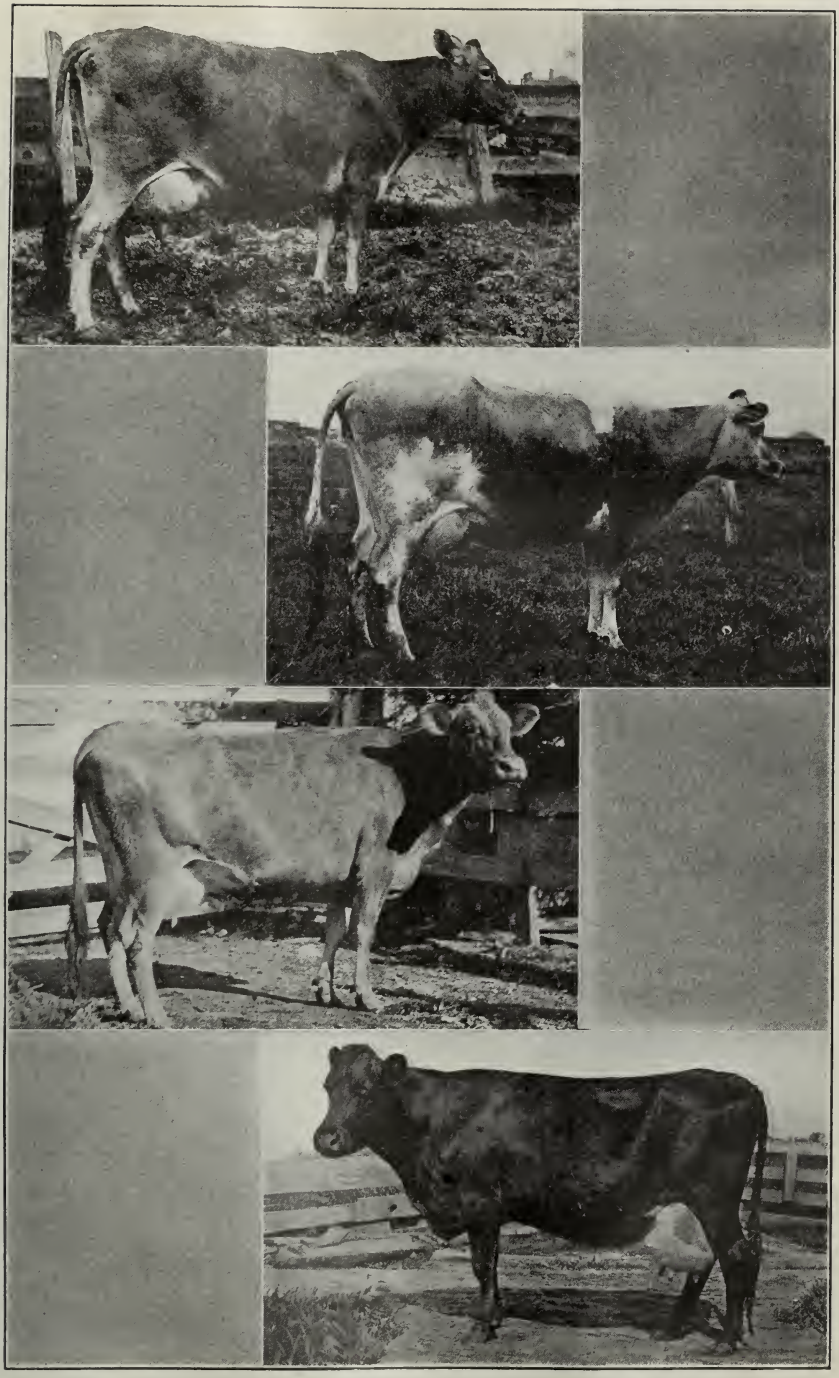

Fig. 2.—Grade Jersey cows, owned by J. W. Coppini, Ferndale. Winner of first herd prize, Class A. Beauty 1st, ten-month record, 589.5 lbs. butter fat; Lady Mac, 583.7 lbs. butter fat; Florinda, 568.7 lbs. butter fat; Little Surprise, 559.2 lbs. butter fat.

TABLE II

Completed Ten Month Records

Owner	Total No. of Records	Breed	Ranges in production of fat, lbs. Actual	Ranges in production of fat, lbs. Credit	Highest production by a cow not barred, lbs. Actual	Highest production by a cow not barred, lbs. Credit
Baldwin, Mrs. Anita M., Santa Anita	5	H.	632.1–516.0	757.9–516.0	632.1	632.1
Beebe, Floyd, Esparto	12	Gr. J.	513.5–277.7	567.3–361.0	513.5	513.5
Bibens, A. M., Modesto	3	H.	656.6–479.9	656.6–503.9	656.6	656.6
Bohnett Bros., Campbell	13	Gr.	566.7–226.2	566.7–244.3	566.7	566.7
Bomberger, J. M., Modesto	9	5 Gr., 4 J.	520.2–330.8	520.2–405.3	520.2	520.2
Christen, J. M., Pacheco	12	11 Gr., 1 H.	284.7–136.1	327.5–160.6	284.7	327.5
Coppini, J. W., Ferndale	21	11 Gr., 10 J.	589.5–300.4	589.5–300.4	589.5	589.5
Dupee, W. H., Santee	3	G.	632.1–474.6	783.9–588.6	.....	.....
Elliott-Brant Rancho, Owensmouth	7	G.	608.9–336.6	608.9–349.0	532.8	575.4
Grice, C. R., Del Mar	3	G.	301.2–264.9	344.4–316.3	301.2	344.4
Gross, H. G., Eureka	8	J.	390.2–259.2	460.4–275.2*	390.2	460.4
Guise, H. J., Davis	1	Gr. J.	430.0	430.0	.....	.....
Henderson, J. W., Martinez	4	G.	495.3–368.7	578.8–426.5	406.2	435.0
Hewins, H., Calistoga	2	H.	361.3–328.4	†361.3–328.4‡	361.3	361.3
Hollow-Hill Farm, Colton	14	11 Gr., 3 G.	614.8–272.6	645.6–286.3*	558.0	602.7
Iverson, Iver, Arcata	15	Gr.	685.8–398.1	685.8–398.1	685.8	685.8
Kell, F. J., Stockton	1	H.	521.4	521.4	521.4	521.4
McFarland, E. G., San Mateo	1	Ay.	612.1	661.0	.....	.....
Mealey, S. A., Gridley	1	Gr. H.	466.0	466.0	.....	.....
Miller, Guy H., Modesto	13	J.	515.8–267.3	515.8–347.6	515.8	515.8
Morris, A. W. & Sons Corp., Woodland	17	H.	928.8–421.8	966.9–421.8	819.4	966.9
Napa State Hospital, Napa	11	10 Gr., 1 H.	762.3–450.5	762.3–485.5	762.3	762.3
Palo Alto Stock Farm, Palo Alto	10	5 G., 5 H.	809.8–460.7	809.8–460.7	764.9	764.9
So. Cal. Hospital, Patton	8	Gr. H.	440.3–288.5	462.3–302.9	440.3	462.3
Stenzel, F., San Lorenzo	12	Gr. H.	729.2–436.6	729.2–448.9	729.2	729.2
Trigg, G. E., Ferndale	15	Gr. J.	632.4–464.3	632.4–475.4	632.4	632.4
University Farm, Davis	15	1 Ay., 4 J., 2 G., 7 H., 1 Gr.	703.4–216.6	759.6–281.6*	404.3	404.3
Van Derpoel, F. H., El Centro	5	J.	668.5–413.3	668.5–413.3	427.4	427.4
Welch, A. J., Redwood City	5	G.	531.5–411.6	574.0–411.6	531.5	574.0
Total	246	Highest	928.8–479.9	966.9–588.6	819.4	966.9
		Lowest	284.7–136.1	327.5–160.6	284.7	327.5

* 8 months; † 9 months; ‡ 7 months.

Records of Production.—The list of ten-month records obtained in the competition, arranged alphabetically according to the owners of the cows, is given in the appendix. Table II shows the summary for cows in each herd, the number of complete records, breed of cows, ranges in actual and credited production of butter fat, with highest production by cows not barred, likewise actual and credited. The explanation of the two sets of figures is as follows: Cows under five years old were given credit for the increase of production that would normally come with advancing age up to five years, in accordance with the average results obtained in authenticated yearly tests of pure-bred cows of different breeds, as follows: Records made by cows under 2½ years at the beginning of the test were increased by 30%, those for heifers 2½ to 3 years old by 24%, for cows 3 to 3½ years old by 18%, 3½ to 4 years old by 15%, 4 to 4½ by 8%, and 4½ to 5 years by 5%.

Under the rules governing the competition, cows not safely bred within five months from last calving were barred from competing for all prizes except those awarded for monthly records, and the trophies offered by the various breed associations. Some of the highest record cows, as a result, did not receive the recognition to which they would otherwise have been entitled. On the other hand, the production of cows which made good records under a regular system of breeding was duly recognized. The aim of the competition was to secure records obtained under as nearly normal every-day conditions as possible, not phenomenal ones secured at the sacrifice of the future usefulness of the cows.

As might be expected, a wide difference in the production of the cows occurred. This will be readily seen from Table III, showing the

TABLE III

RANGES IN PRODUCTION OF MILK AND BUTTER FAT

Lbs. Milk	No. of records	In per cent	Lbs. butter fat	No. of records	In per cent
over 24,000	1	.4	over 900	1	.4
20,000–24,000	9	3.7	800–900	3	1.2
16,000–20,000	20	8.1	700–800	8	3.3
12,000–16,000	44	17.9	600–700	21	8.5
10,000–12,000	35	14.2	500–600	52	21.1
8,000–10,000	69	28.1	400–500	93	37.8
6,000– 8,000	44	17.9	300–400	39	15.9
4,500– 6,000	20	8.1	200–300	24	9.8
under 4,500	4	1.6	under 200	5	2.0
	246	100.0		246	100.0

ranges in production of milk and butter fat. The records were separated into groups of over 24,000 pounds to below 4500 pounds of milk and of over 900 pounds to below 200 pounds of butter fat. The lowest ten-month milk record of a single cow was 4043.6 pounds milk and the highest 24,201.7 pounds, a ratio of 1 : 6. The lowest production of butter fat was 136.1 pounds and the highest 928.8 pounds (ratio, 1 : 6.8).

A study of the records of production obtained in the competition will show at once that most of these are remarkably high; in fact, it may be safely said that never in the history of our dairy industry have so many high production records been secured in a breed contest or a dairy competition of any kind. Nearly three-fourths of the records came above 8000 pounds of milk and 400 pounds of butter fat, and about 44 and 35 per cent came above 10,000 pounds of milk and 500 pounds of butter fat, respectively. In twenty-one out of twenty-nine competing herds, there was at least one cow, in most of them there were several, that produced over 500 pounds of butter fat during ten months. Five hundred pounds of butter fat will make about 580 pounds of commercial butter.[2] With butter selling at 50c a pound, the annual product of a 500-pound cow will be worth $250, not counting the value of the calf and the skimmilk. Contrasting this production with that of the average cow on the dairy ranches in this or other states, which produces less than 150 pounds of butter fat in a year, it will be seen that the production of over one-third of the cows in the competition (34.5 per cent) was worth over three and one-third times as much as that of an average dairy cow; if the value of the calves dropped be considered, the difference between the returns from the two kinds of cows would be still further increased.

The average production of all cows for which ten-month records were obtained, was as follows: 10,648 pounds milk and 461.15 pounds butter and is at least three times that of the average dairy cow in the state. The maximum production of butter fat by a cow in the competition (928.8 pounds, equivalent to nearly 1100 pounds of commercial butter), in the same way is over six and one-half times that of the cows commonly found in our dairy herds. Only one cow entered in the competition, a three-year-old grade Holstein heifer, produced less butter fat than the average for the state.

Cows Barred from Competing for Prizes.—Sixty cows out of 246 completing ten-month records, or 24 per cent, were barred from competing for prizes on account of not being in calf within five

[2] The amount of butter a certain amount of butter fat will make may be obtained by increasing the latter by one-sixth.

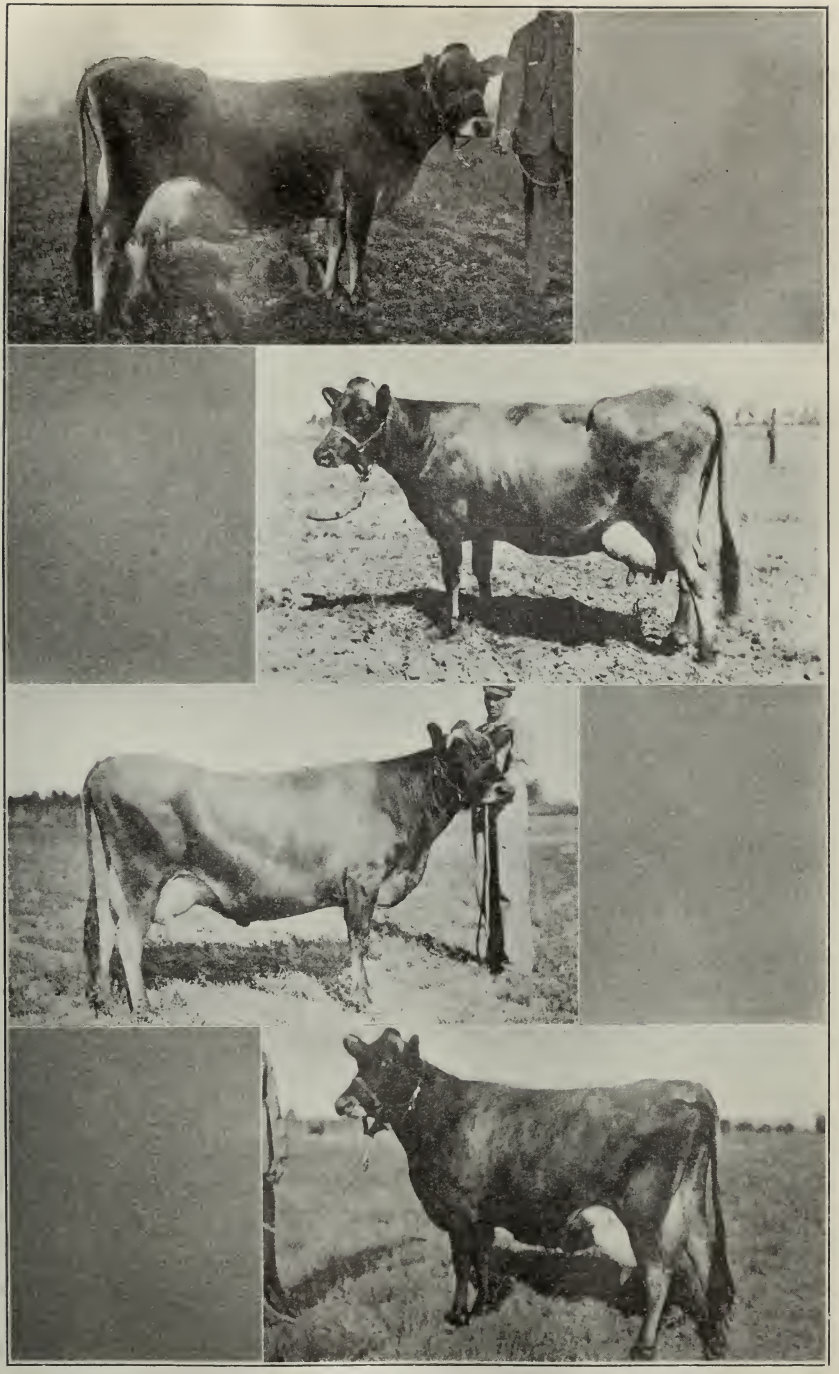

Fig. 3.—Jersey cows owned by Guy H. Miller, Modesto; winner of second herd prize, Class A. Goldie of Venadera, 243,321, 10-month record, 515.8 lbs. butter fat; Lorita of Venadera, 218,052, 470.4 lbs.; Juanita of Venadera, 229,071, 448.8 lbs.; Lorna of Venadera, 196,127, 438.3 lbs.

months from freshening. Of this number, forty-three were pure-bred cows and seventeen grades (36 and 13 per cent, respectively, of the total number). The higher percentage of pure-bred cows barred is only what might be expected, since many of these cows were also entered for yearly records in their respective breed associations and were bred rather late in the lactation period in order to secure a maximum production for the year. In many cases, the heavy feeding practiced also doubtless influenced the reproductive powers of the cows and made them uncertain breeders. This is suggested by the fact that more of the high than of the low producing cows failed to come in calf; among the cows producing less than 500 pounds of butter fat, from 4 to 26 per cent were barred in different groups (average 20 per cent), against 18 to 100 per cent for the groups of cows having an average production of over 500 pounds of butter fat (average 31 per cent).

DISCUSSION OF RESULTS

Production by Breeds.—The production by cows of the different breeds for the record period has been compiled, with results as shown in Table IV. The average amount of milk and butter fat, and the average fat content of the milk produced by the cows are given in the table, both for pure-bred and grade cows and for grades of the different breeds.

TABLE IV

AVERAGE PRODUCTION OF COWS OF DIFFERENT BREEDS

	No. of cows	Milk, lbs.	Butter fat	
			Lbs.	Ave. per cent
Pure-breds				
Holstein	42	15,999.0	560.16	3.50
Jersey	44	7,300.7	401.29	5.50
Guernsey	32	9,500.2	475.69	5.01
Ayrshire	2	11,169.0	496.63	4.45
Grades				
Holstein	48	11,928.0	412.39	3.46
Jersey	55	9,310.3	482.67	5.18
Guernsey	15	9,330.0	480.86	5.15
Mixed breeding	8	9,444.4	415.13	4.40
Ave. for all grades	126	10,317.0	451.32	4.37

It will be seen that the pure-bred Holsteins had the highest average production of milk and butter fat, viz., 16,000 pounds of milk and 560 pounds of butter fat; the Ayrshires (two cows only) ranked next in production of butter fat, the other breeds ranking in the following order: grade Jerseys, grade Guernseys, pure-bred Guernseys, grade Holsteins, pure-bred Jerseys, and grades of mixed breeding. One

would not be warranted in concluding from these data that the value of the different breeds for dairy production is necessarily as indicated by the order given. Many factors enter into the case. First of all, the average for the pure-bred Holsteins came mainly through the exceptionally high production of the cows in two competing herds; the high figures for the grade Jerseys and Guernseys, in the same way, are due to the excellent showing of cows in the relatively few herds of these breeds that participated in the competition; so far as the Jersey grades are concerned, the remarkable records reached are

Fig. 4.—Aaggie Acme of Riverside 2d, 164467, owned by A. W. Morris & Sons Corp., Woodland. The highest producing cow in the competition: 22,087.7 lbs. milk, 928.813 lbs. butter fat; average fat, 4.21 per cent.

directly traceable to the effect of systematic testing and culling-out of poor cows in the herds during many years of cow-testing association work.

A dairy farmer might well be satisfied with an average production like that of cows of any one of the breeds given, whether pure-breds or grades; the differences shown are due to more or less accidental causes, and the results can, therefore, only in a general way be taken to indicate the value of the different breeds for dairy production. They do not in any case disclose the relative economy of the production by cows of different breeds, since it proved impossible to secure satisfactory data as to amounts of feed eaten in most of the competing herds. Large cows require more feed for maintenance of body weight

and for the continued exercise of vital functions than do small cows, but as a general rule they, also, have larger mammary glands and are able to produce more milk and milk solids than the smaller cows. In any of the improved dairy breeds, we find animals that stand far above the average in productive capacity, and low-producing cows are likewise found in all breeds. The selection of good individuals of the special breed that best serves the purpose in view and that happens to strike one's fancy is, therefore, of primary importance for

Fig. 5.—Miss Valley Mead De Kol Walker, 250956, owned by A. W. Morris & Sons Corp., Woodland, winner of first price in Class B, for the highest production of butter fat during ten consecutive months. Record (nine months six days), 20,690.3 lbs. milk and 819.421 lbs. butter fat; average per cent, 3.96 (credit for production of butter fat, 966.9 lbs.).

success in dairying; good cows of any breed will give good profits on the investment, even under present high prices of feed and labor, and the moderate increase in prices for milk and other dairy products that has come during the last year.

Pure-breds vs. Grade Cows.—The figures for average production given in Table IV might lead some to believe that grade cows are better producers than pure-breds, basing this conclusion more especially on the production figures for pure-bred and grade Jerseys. The reason for the excellent records secured in the case of the grade Jerseys has already been explained, and it should be kept in mind that these were exceptionally high producers. No very high producing pure-bred Jersey herd was, on the other hand, entered in the competition. The average production of butter fat for all pure-bred cows in the competition, 476.2 pounds, was twenty-five pounds higher than that for the grades. The income from a grade herd comes almost

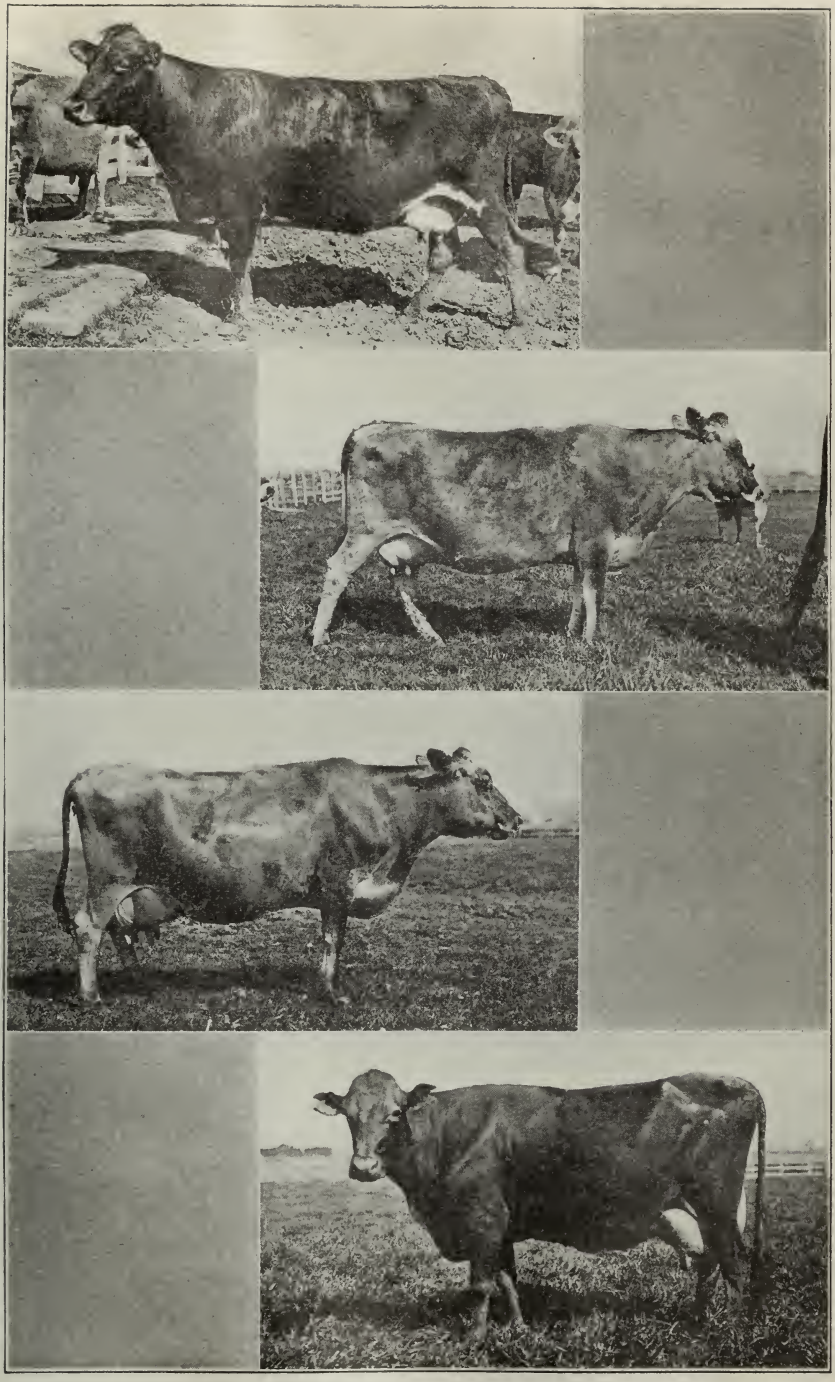

Fig. 6.—Grade Jerseys owned by G. E. Trigg, Ferndale, winner of first herd prize, Class C. Brindle, ten-month record, 632.4 lbs. butter fat; winner of fourth prize, Class C, and of McAlister & Sons' prize, June, 1917. Queen, 595.3 lbs. fat, winner of McAlister & Sons' prize, September, 1917. Irene, 569.6 lbs.; Reddy, 565.8 lbs.

wholly from the milk produced, while in the case of a pure-bred herd, the calves represent a very important source of income, often greatly in excess of that from the milk or cream, so that the profitableness of the two systems of dairying cannot be judged solely on the basis of the value of the dairy products secured. Many farmers make an excellent success of dairying with a grade herd who might not be able to carry on a successful business with pure-bred stock. With intelligent care and attention, a pure-bred dairy will be likely to bring higher both gross and net returns than a grade dairy, but it also takes greater skill and more expert business knowledge and

Fig. 7.—Grades owned by Iver Iversen, Arcata, winner of second herd prize, Class C. Roan Cow, to extreme right, winner of third prize, Class C, and of McAlister & Sons' prize, October, 1917; ten-month record, 685.8 lbs. butter fat.

involves a greater investment and larger risk than in the case of grade herds. Here, as between the different breeds, success is possible in either case, and the chances for failure are not absent in either. The important factor in the operation of any dairy herd is to secure the best dairy-bred bull of the special breed preferred that one can afford and gradually to cull out all low producers in the herd so that a high average production for the same may be reached. Under present conditions, dairying cannot be profitable except when these two essentials are adopted in the management of the herd.

Comparison with Advanced-Registry Records.—If we compare the average results for cows of the different breeds in the competition with the production of the best cows in the country, as shown by the averages for the corresponding Advanced-Register (or Register-of-Merit) records for one year, we note that the former records for Holsteins, Guernseys and Ayrshires are respectively 60, 30, and 120 pounds of butter fat higher than the average Advanced-Registry records, while that of the Jerseys is 20 pounds lower, but the average production of the grade Jerseys in the competition during ten months

was 61 pounds (about 13 per cent) higher than that for a full year for pure-bred Jerseys in the Register of Merit of the American Jersey Cattle Club.

These comparisons will enable the reader to appreciate more fully the large records made in the competition, and the fine quality of dairy cows raised by breeders of pure-bred stock in our state. With but few exceptions, these cows were bred and developed in California;

Fig. 8.—Alice, grade Holstein, owned by F. Stenzel, San Lorenzo; winner of second prize, Class C. Ten-month record, 20,099.4 lbs. milk, 729.186 lbs. batter fat; average fat, 3.63 per cent.

as has been shown, their ten-month records are considerably higher, on the average, than those for a full year's production by Advanced-Registry cows in this country.

Highest Production Records by Breeds.—The records of the highest producing cows of each breed represented in the competition are given in Table V.

TABLE V

HIGHEST RECORDS OF PRODUCTION BY BREEDS

Breed	Name of cow	Owner	Y-M Age	lbs. Milk,	Butter fat		Credit for butter fat, lbs.
					Per cent	lbs.	
Ay.	Willowmoor Vesta IV	E. B. McFarland	4–5	14,100.9	4.34	612.06	661.02
G.	Imp. President's Doris of Lewison	Palo Alto Stock Farm	7	13,482.3	5.12	690.16	690.16
J.	Interested Jap's Santa	University of Calif.	4–2	12,108.5	5.49	703.37	759.64
H.	Aaggie Acme of Riverside 2d	A. W. Morris & Sons Corp.	6–1	22,087.7	4.21	928.81	928.81
Gr.	Monte 1st	Napa State Hospital	6	20,596.4	3.70	762.29	762.29

The Guernsey cow, Jesebel of Edgemoor (W. H. Dupee, owner), had a higher credit for production of butter fat than the Guernsey given in the table, viz., 783.85 pounds, since she produced 632.14 pounds as a two-year-old. The Holstein cow, Miss Valley Mead De Kol Walker (A. W. Morris & Sons Corporation, owners), likewise ranked above the Holstein given in the table, her credited production being 966.92 pounds, actual production 819.42. All the cows given in the table, with the exception of Monte 1st, were barred from competing for prizes on account of their breeding records (p. 163).

Average Production of Cows by Months.—The average monthly production of milk and butter fat for the cows during the competition was calculated each month for all cows whose milk records were transmitted prior to the 15th of the following month. The data so obtained are presented in Table VI.

TABLE VI

SUMMARIES BY MONTHS

Month	No. cows	Days in milk	Average production		Butter fat		No. over 50 lbs.	Per cent	No. over 40 lbs.	Per cent
			Lbs. milk	Lbs. fat	Max.	Min.				
1916										
Nov.	27	30	1,086.7	51.18	77.29	29.01	14	52	23	85
Dec.	66	34	1,223.7	57.27	116.51	30.15	40	61	57	86
1917										
Jan.	98	49	1,303.0	54.37	104.47	23.90	54	55	75	77
Feb.	166	58	1,300.3	49.08	94.45	21.62	73	44	131	79
Mar.	185	70	1,401.1	54.32	105.27	23.83	113	61	156	84
Apr.	217	74	1,347.3	55.29	96.85	21.66	146	67	196	90
May	267	91	1,288.1	53.23	102.86	17.95	149	56	210	79
June	271	113	1,175.8	48.36	93.76	19.40	127	47	187	69
July	231	151	1,252.2	49.22	101.28	11.81	115	50	181	78
Aug.	222	173	1,038.1	44.89	89.35	11.23	85	38	143	64
Sept.	198	191	929.9	41.72	85.33	10.38	55	28	113	57
Oct.	164	.....	847.7	39.74	83.41	7.51	42	26	89	54
Nov.	132	.....	809.7	33.60	78.11	11.14	20	15	59	45
Dec.	105	245	729.3	37.57	77.99	5.72	16	15	46	44
1918										
Jan.	63	298	723.3	37.58	89.61	6.02	8	13	25	40
Feb.	34	274	696.9	31.36	73.68	13.20	3	9	5	15

Highest Producing Cows for Each Month.—Table VII shows the cows that produced the most butter fat during each of the sixteen months of the competition; the name of owner, breed, days in milk, and production of butter fat being given in each case. For cows that completed ten-month records, the production for this period is also given. It is of interest to note that the ten-month records, in general,

varied with the monthly production and that they are all exceptionally high, ranging from 614.8 to 928.8 pounds of butter fat; the average for the eight cows for which complete records were obtained being 765 pounds of butter fat (equivalent to nearly 900 pounds of commercial butter) for ten months, and 90.5 pounds of butter fat (105.6 pounds butter) per month.

TABLE VII

HIGHEST PRODUCING COWS FOR EACH MONTH OF THE COMPETITION

Month	Name of cow	Owner	Breed	Production of butter fat, lbs.	
				Month	Ten months
1916					
Nov.	Imp. Cherry of the Effords III	Hollow-Hill Farm	G.	77.293	614.84
Dec.	Aaggie Acme of Riverside 2d	A. W. Morris & Sons Corp.	H.	116.514	928.81
1917					
Jan.	Aaggie Acme of Riverside 2d	A. W. Morris & Sons Corp.	H.	104.436	.....
Feb.	Aaggie Acme of Riverside 2d	A. W. Morris & Sons Corp.	H.	94.445	.....
Mar.	Mabel Hask. Col. Girl	K. W. Abbott	H.	105.271	.....
Apr.	Imp. President's Doris of Lewison	Palo Alto Stock Farm	G.	96.196	690.16
May	Alice	F. Stenzel	Gr. H.	102.858	729.19
June	Monte 1st	Napa State Hospital	Gr. H.	93.759	762.29
July	Ninette Aine Pauline	Palo Alto Stock Farm	H.	101.281	603.62*
Aug.	Ninette Aine Pauline	Palo Alto Stock Farm	H.	89.349	.....
Sept.	Ninette Aine Pauline	Palo Alto Stock Farm	H.	85.327	.....
Oct.	Miss Valley Mead De Kol	A. W. Morris & Sons Corp.	H.	83.401	829.68
Nov.	Ninette Aine Pauline	Palo Alto Stock Farm	H.	78.106	.....
Dec.	Margaret Aralia De Kol	A. W. Morris & Sons Corp.	H.	77.988	745.76
1918					
Jan.	Aralia De Kol Mead	A. W. Morris & Sons Corp.	H.	89.609	829.68
Feb.	Margaret Aralia De Kol	A. W. Morris & Sons Corp.	H.	73.682	.....
			Average	90.959	748.23

* In 6½ months.

Award of Prizes.—The awards of prizes offered in the competition were made on March 11, 1918, by a committee consisting of G. H. True, head of the Animal Husbandry Division of the Department of Agriculture of the University of California, the writer, and three breeders nominated by the dairymen participating in the competition,

Messrs. Gion W. Gibson, of Williams; J. E. Thorpe, of Lockeford; and A. B. Humphrey, of Mayhews. Mr. Humphrey was unable to meet with the committee on account of illness. The results of the decisions of the committee were announced at the evening session of the Dairy Farmers' Conference at the University Farm, March 15, when the prizes were presented by Thomas F. Hunt, Dean of the College of Agriculture. The complete list of awards is given in the appendix. The awards of several special prizes are given in the following pages, with brief discussions of the production by the prize winners.

Fig. 9.—Imp. England's Lady Orange, 65663 (Guernsey), owned by Palo Alto Stock Farm, Palo Alto, winner of first prize, Class A, for the highest production of butter fat by a cow during ten consecutive months; 585.8 lbs. butter fat.

Prizes for Monthly Production by Grade Cows.—Two series of prizes were offered for the highest monthly production by grade cows in the competition: one, for the highest production of butter fat by a single cow for each month during 1917, offered by McAlister & Sons, of Chino; and the other, for the highest average production of butter fat by five grades for each month during the competition, offered by the Pacific Rural Press, of San Francisco. Tables VIII and IX give the awards of these prizes with accompanying information as to the prize winners and their production. It will be noted that both the monthly production and the ten-month records of the winners of the McAlister & Sons prizes were very creditable indeed. The prizes of the former were won five times by Holstein grades, six times by Jersey grades, and once by a Shorthorn grade. The ten-month

TABLE VIII

WINNERS OF THE MONTHLY PRIZES OFFERED BY McALISTER & SONS, CHINO, CALIF.

Month 1917	Name of cow	Breed	Name of owner	Age	Days in milk	Monthly production			Ten-month records, lbs. butter fat
						Milk, lbs.	Butter fat		
							lbs.	Per cent	
Jan.	No. 67	H.	Napa State Hospital	4	42	1,975.9	81.605	4.13	451.58
Feb.	Spot	H.	F. Stenzel	3	13	1,711.0	66.900*	3.91	453.34
Mar.	No. 66	H.	F. J. Kell	3	6	2,061.5	84.315	4.09	.....
Apr.	Alice	H.	F. Stenzel	5	21	2,474.9	93.056	3.76	729.19
May	Monte 1st	H.	Napa State Hospital	6	47	2,714.6	97.183	3.58	762.29
June	Brindle	J.	G. E. Trigg	8	66	1,788.0	80.460	4.5	632.44
July	Betsy	J.	G. E. Trigg	11	35	1,891.0	98.332	5.2	484.52
Aug.	Little Surprise	J.	J. W. Coppini	5	97	1,109.8	71.027	6.4	559.22
Sept.	Queen	J.	G. E. Trigg	....	171	1,044.0	65.146	6.24	595.33
Oct.	Roan Cow	G. Sh.	Iver Iversen	7	194	1,295.8	75.675	5.84	685.84
Nov.	Jeffrey's Brownie	J.	Iver Iversen	7	227	927.0	57.103	6.16	544.44
Dec.	Irene	J.	Floyd Beebe	6	231	942.4	56.544	6.00	506.08
			Average				77.3		582.2

* Credit, 78.942 lbs. butter fat for month, and 534.94 lbs. for ten-month period.

records of the cows ranged from 451.58 to 762.29 pounds of butter fat and averaged 582.2 pounds, a remarkably high average production for eleven grade cows.

The data presented in Table IX show that the average monthly production of butter fat by five grades varied from 34.3 pounds (for cows 288 days in milk, on the average) to 84.6 pounds, with an average of 59.11 pounds. The production of the individual grades for the month ranged from 30.91 to 102.86 pounds. No cow was considered more than once in the award of either of the two series of monthly prizes.

TABLE IX

PACIFIC RURAL PRESS PRIZE. AVERAGE PRODUCTION OF FIVE GRADES

Month 1916	Name of owner	Breed	Days in milk	Milk, lbs.	Butter fat		Butter fat	
					Lbs.	Per cent	Max.	Min.
Nov.	Napa State Hospital	H.	15	1,276.8	46.587	3.65	58.39*	49.13
Dec.	Bohnett Brothers	H.	32	1,085.4	49.319	4.54	77.58	48.73
1917								
Jan.	Abbott, K. W.	H.	53	1 436.5	56.605	3.94	62.36	52.24
Feb.	Napa State Hospital	H.	51	1,910.5	63.696	3.33	74.90	55.61
Mar.	Kell, F. J.	H.	23	1,905.1	71.050	3.73	84.32	55.97
Apr.	Trigg, G. E.	J.	15	1,744.0	82.372	4.72	91.70	77.12
May	Stenzel, F.	H.	116	2,177.0	84.640	3.89	102.86	61.15
June	Coppini, J. W.	J.	65	1,260.6	67.297	5.33	73.30	64.52
July	Trigg, G. E.	J.	85	1,277.8	74.868	5.85	98.33	65.79
Aug.	Iversen, Iver	J.	134	1 279.1	64.740	5.06	67.90	60.78
Sept.	Coppini, J. W.	J.	175	843.6	51.033	6.05	57.29	40.96
Oct.	Iversen, Iver	J & G	208	879.2	51.952	5.91	59.28	45.01
Nov.	Trigg, G. E.	J.	246	612.2	41.950	6.85	48.99	32.66
Dec.	Beebe, Floyd	J.	234	836.4	46.199	5.52	56.54	40.30
1918								
Jan.	So. Cal. State Hospital	H.	288	895.5	34.299	3.83	40.04	30.91
				Range	34.3–84.6		102.86–30.91	
				Average	59.107			

* 28 days.

Cow-Testing Association Prizes.—Three prizes for yearly records made by herds belonging to a cow-testing association were offered by the California Cultivator Publishing Company, Los Angeles; one each for herds of 10–25 cows, 26–50 cows, and over 50 cows. Nine herds competed for these prizes, six of which belonged to the Ferndale Cow-Testing Association, two to the Imperial Valley Association, and one to the Solano-Yolo-Colusa Association. The average production of

these herds is given in Table X. Two other herds, one each in the Gridley and the San Joaquin County Associations could not continue in the competition to the end, owing to the loss of testers through draft and resulting discontinuance of the work of the associations.

TABLE X

Cow-Testing Association Prizes, Offered by California Cultivator Publishing Company, Los Angeles

Name of owner	No. of cows in herd	Average production		Per cent fat
		Milk, lbs.	Butter fat, lbs.	
(*a*) 10 to 25 cows				
(1) J. W. Coppini,* Ferndale	22	8,979.0	510.09	5.68
(2) Floyd Beebe, Esparto	18	9,470.1	387.56	4.09
(3) C. Darnell, Brawley	10	10,813.7	362.78	3.37
(*b*) 25 to 50 cows				
(1) Iver Iversen,* Arcata	37	10,445.0	497.73	4.76
(2) G. E. Trigg, Ferndale	35	8,658.8	485.96	5.62
(3) Aux Ambort, Holtville	29	9,134.7	357.39	3.91
(*c*) over 50 cows				
(1) W. Terkelsen,* Ferndale	53	8,445.1	420.46	4.98
(2) Coppini & Coppini, Ferndale	60	7,600.0	379.44	4.99
(3) John Hansen, Loleta	101	6,635.5	339.63	5.12

* Winner of prize.

All three prize winners were members of the oldest cow-testing association in the state, that of Ferndale, Humboldt County, which has been in continuous operation since February, 1909. The other associations represented among the competitors, the Solano-Yolo-Colusa and the Imperial Valley Associations, were organized in April, 1916, and December, 1917, respectively. It is no accident that the Humboldt County herds rank highest and next to highest in all three classes. The effect of the cow-testing association work is cumulative; it gives the dairyman definite knowledge of the production of his cows from year to year, and shows him which are profitable producers and which are not. He is able, therefore, to dispose of the latter kind of cows and thus gradually raise the production of his herd. The importance of well-bred dairy bulls for increasing the production of the herd is also brought home with increasing emphasis each year by the results of cow-testing association work. The showing made in the competition by the herds belonging to the Ferndale Cow Testing Association furnishes a striking illustration of the value of continued association work to the members and to the dairy industry of the state. It is a source of keen disappointment to all interested in the progress of our dairy industry that several of the associations in the state have been discontinued during the past year on account of the loss of their

testers through enlistment or draft, and the impossibility of securing new men to take their places.

Prizes for Herd Records.—The largest cash prizes offered in the competition were the so-called herd prizes awarded for the highest average production of butter fat by ten cows in a herd; twelve such prizes aggregating $1950 in value were offered, viz., three each of

Fig. 10.—Imp. President's Doris of Lewison, 32145, owned by Palo Alto Stock Farm. Highest producing Guernsey cow; 13,482.3 lbs. milk and 690.16 lbs. butter fat; average fat, 5.12 per cent.

$300, $200, $100, and $50. Owing to lack of qualified competitors, five of these prizes were not awarded. The awards made went to the breeders given below.

		Average production of Butter fat, lbs.		Ave. per cent fat
Class A, Jerseys or Guernseys	Milk, lbs.	Actual	Credit	
1st prize, J. W. Coppini, Ferndale	7,592.5	435.85	470.95	5.74
2nd prize, Guy H. Miller, Modesto	7,445.0	394.49	418.18	5.30
Class B, Holsteins				
1st prize, A. W. Morris & Sons Corp., Woodland	17,193.4	588.75	671.86	3.43
Class C, Other breeds and grades				
1st prize, G. E. Trigg, Ferndale	9,908.9	557.36	580.54	5.63
2nd prize, Iver Iversen, Arcata	10,891.8	558.56	576.41	5.13
3rd prize, F. Stenzel, San Lorenzo	16,159.9	534.36	558.86	3.31
4th prize, J. W. Coppini, Ferndale	9,192.5	520.57	532.86	5.66

The winners of these prizes, at the request of the writer, furnished brief accounts of the method of feeding and handling their cows, which will be found in the following pages.

SYSTEM OF FEEDING PRIZE-WINNING HERDS

J. W. Coppini, Ferndale.—At the first inception of the California State Dairy Cow Competition, I fully realized the object and benefit to be derived from it, and decided to enter every cow in my herd.

About two months before entering, my cows were put dry and fed as follows: All the mixed rye-grass and clover hay they would eat up clean, together with a liberal ration of beets, and about three pounds of grain or dried beet pulp, as I happened to have on hand.

Fig. 11.—Gertie Olga of Ferndale, 314818, owned by J. W. Coppini, Ferndale, winner of second prize, Class A, for the highest production of butter fat by a cow during ten consecutive months; 8,888.9 lbs. milk and 500.993 lbs. butter fat: average fat, 5.64 per cent. (Credited production, 576.1 lbs.)

After freshening, the grain ration was increased to four or five pounds per cow daily. During the spring and early summer months green cut grass was fed in the barn during milking, and later as the grass became short, oxheart carrots were gradually substituted, and later beets and hay during fall and winter months. They were milked twice a day and pastured the year round; kept in the barn at night in the winter and also in the day time when real stormy. Plenty of bedding was always provided.

Guy H. Miller, Modesto.—At the beginning of the contest, the cows were being fed a molasses dairy feed. A little later a ration composed of three parts crushed barley, two parts shorts and one part linseed meal was substituted. For the first month it was fed with a small amount of beet pulp. As the cows did not like beet pulp very well, it was discontinued December 1st. The cows were fed alfalfa hay and the above grain mixture up to April 1st, 1917. We then began feeding the first cutting of alfalfa and foxtail green as part of the night feed. About the first of May crushed barley alone was substituted for the former mixed ration. The ration then was crushed barley and alfalfa hay, with green

alfalfa as part of the night feed. In July crushed oats was mixed with the barley, half and half. The alfalfa hay and alfalfa soiling was continued as before.

On August 1st, the oats were left out of the ration, alfalfa hay continued, and green kaffir corn was given in the night feed. This ration was continued until September 10th, when we ran out of kaffir corn. Alfalfa hay and crushed barley and oats were fed, in the proportion of two parts barley and one part oats, to September 25th. The cows were then turned out a part of each day to pasture off what was left on the alfalfa fields in the way of green feed, haying being over on account of short irrigation season. The cows were pastured about two weeks, receiving alfalfa hay in the morning and a light feed of the same at night, the grain ration of oats and barley being continued. Pasture was discontinued October 10th and cows were then on dry feed entirely. October 22nd, as the price of barley and oats had soared out of reason, we turned to molasses dairy feed for a concentrate. This dairy feed is supposed to consist of one-third each of molasses, crushed barley and "dairy chop." This ration of alfalfa hay and molasses feed was continued to the end of the contest.

The ten cows that won the second herd prize were fed 20,677 lbs. of concentrates during the 304 days they were in the contest, as average of 6.8 lbs. per day, the largest average amount of concentrates being given to Goldie of Venadera, 10.2 lbs., and the smallest amount to Martha of Venadera, 3.6 lbs.

The cows were fed and milked twice daily throughout the contest, with the exception of Lorita of Venadera, one of the older cows that now leaks her milk very badly. She was milked three times daily for six weeks, but as she seemed to leak just about the same, her three-times milking was discontinued. When not in the barn night and morning being fed and milked, the cows ran in a corral adjoining the barn at all times, except the two weeks they were pastured a part of each day. There is a closed-in shed in connection with the corral for protection during bad weather.

A. W. Morris & Sons Corporation, Woodland.—Miss Valley Mead De Kol Walker was milked four times a day during the first four months and three times a day during the last six months of the record period. Her grain ration varied from ten to eighteen pounds a day, consisting of equal parts of ground barley, ground oats, and wheat bran, with one to two pounds cottonseed meal and two to four pounds soy bean meal. A little linseed meal was fed in place of the above concentrates at times. Her roughage consisted of corn silage during the winter, about fifteen pounds once a day, and five to ten pounds of dried beet pulp a day. She also had fresh beets during part of the test, which were fed in place of the silage. In addition to this, she of course had what alfalfa hay she would clean up. The above feeds were varied in amounts according to the cow's appetite for them. She was kept in corral and box-stall and fed at each milking.

The other cows were handled in the same manner, and their rations consisted of the same feeds, varied in amounts according to the production and peculiarities of the cows. These other cows were milked three times a day and were kept with the herd and given a light feed of rice bran, wheat bran, and beet pulp.

G. E. Trigg, Ferndale.—Up to 1906 my father dairied with good grade cows, but had no particular breed. In 1906 he bought eight head of half-bred Jersey heifers that freshened that spring. They milked fine and during the fall and summer we tested and weighed their milk and found that they were doing really better than some of our old cows.

In 1907 he began to prefer Jerseys and bought three high-grade heifers and a registered bull. That summer we tested and weighed the heifers' milk and found that they were doing far better than our other cows. The next spring we bought more high-grade heifers and in 1909 we had a nice bunch of young cows. That spring the Ferndale Cow-Testing Association was organized and we joined this association and our herd has been tested continually ever since.

Fig. 12.—Little Beauty 2d, 45221, Guernsey, owned by Elliott-Brant Rancho, Owensmouth. Winner of third prize, Class A, for the highest production of butter fat by a cow during ten consecutive months; 10,083.8 lbs. milk and 532.766 lbs. butter fat; average fat, 5.26 per cent. (Credited production, 575.42 lbs.)

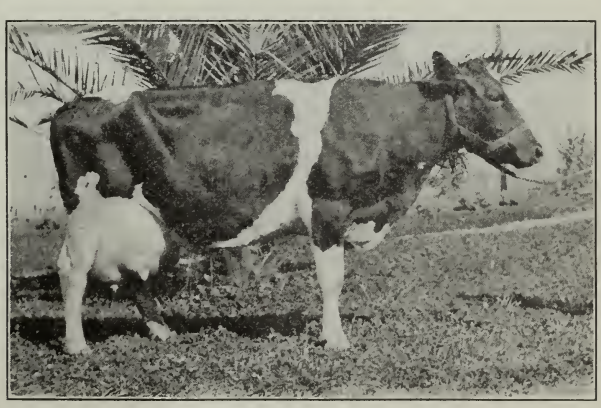

Fig. 13.—Monte 1st, grade Holstein, owned by Napa State Hospital, Napa. Highest producing grade in the competition. Winner of first prize, Class C, for the highest production of butter fat by a cow during ten consecutive months, and winner of McAlister & Sons' prize for May, 1917; 20,596.4 lbs. milk and 762.287 lbs. butter fat; average fat, 3.70 per cent.

In 1913 I bought the cows and rented the ranch from my father and continued along the same lines of management. I raised all my heifer calves and in the fall picked out my best heifers to build up my herd and sold the rest. I have not bought a cow since I took over the ranch, but have raised all heifers that I put in to replace my older and poorest cows with. I consider that is the only way a man can build up a good herd after he has gotten a good start. That is, to get a good pure-bred bull, to test the cows, and keep the best heifer calves.

During the summer of 1915, I was somewhat short of feed, so bought and fed some cocoanut meal with my carrots and beets and found after feeding it awhile that my cows milked far better than they did on roots alone. The next summer I fed cocoanut meal and bran continually and kept account of its cost; at the end of the season I found that the cows had made me two dollars extra for every dollar I had spent for grain, and my cows were fat.

As soon as I could dry my cows that fall, I began to condition them up for the 1917 season. I consider that a very important part in the dairy business. I was like many other dairymen—when my cows were dry I fed them straw and thought they would get along all right and that was all I cared, but I have found things different. I think the fatter one can get the cows at freshening time, the better they will do that season.

In 1917 my cows always had lots of pasture and besides I fed a grain ration of about one pound of grain for every five pounds of milk. The grain consisted of cocoanut meal, bran, barley and dried beet pulp. I mixed these according to what feeds I had on the ranch and tried to make somewhat of a balanced ration.

About August 1st I began feeding carrots and fed about 80 pounds a day to each cow until Nov. 20th, when I began feeding beets of which about the same amount was fed. December 1st I started feeding rye grass and clover hay and gave the cows all they would clean up.

Iver Iversen, Arcata.—During the months of April, May, and June, my cows were fed green clover pasture, green oats and vetches in the barn, twice daily, and also four pounds of a mixture of wheat, cocoanut meal, and cottonseed meal, daily per cow. In July and August they were fed green peas and clover pasture, and also four pounds grain. During September, October, November they were fed green Indian corn (Yellow Dent), carrots (120 to 150 lbs. per cow daily) and six pounds mixed grain as above mentioned. During the months of October and November they were also fed 10 lbs. alfalfa hay per cow. From December 1 to March they were fed from 125 to 150 lbs. beets per cow daily, with six lbs. grain feed, and 10 lbs. alfalfa hay.

F. Stenzel, San Lorenzo.—The cows that were entered in the competition were fed like the balance of the herd. The daily rations fed until March 15, 1917, were 50 pounds wet brewers' grains, 10 pounds dried beet pulp, 1 pound linseed meal, with alfalfa hay and mangels. About 60 pounds fresh cut green alfala was fed March 15 to November 10, and after that time about 35 pounds of alfalfa hay was fed daily per head. On account of the high price of mill feeds we left them out of the ration entirely. This was very likely a mistake, for by adding a small amount of mill feed, the result in the competition might have been different, especially in the case of Alice. Another thing that worked against the best results was a change in the milker and feeder during the competition period. The first six months the cows were milked three times a day and cared for by a competent, careful man. After he left they were milked twice a day by an inexperienced feeder.

Hollow-Hill Farm, Colton (A. Benjestorf, Supt.).[3]—The grade Guernsey cows which were entered in the State Dairy Cow Competition by Hollow-Hill Farm worked under the handicap of being milked under the strictest certified requirements: they were washed twice daily, were milked in a cement-floored barn separate from the one in which they were fed, stood for five hours twice daily in the two barns being milked and fed, and for the most of the time were milked but twice a day. Their feed was concentrates, "Sure-milk" and wheat bran, fed in the proportion of about one pound of feed for six to ten pounds of milk; Indian

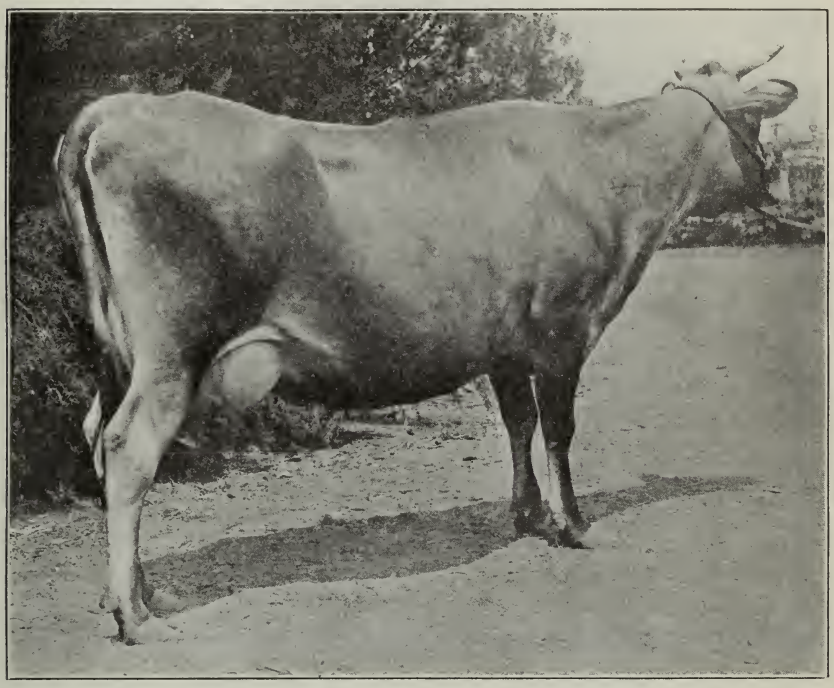

Fig. 14.—Interested Jap's Santa, 296928, owned by University of California, Davis. Winner of trophy awarded by A. J. C. C. for the highest record of a registered Jersey cow for ten consecutive months; 12,108 lbs. milk, 703.369 lbs. butter fat. Average fat, 5.49 per cent. (Credited production, 759.6 lbs. fat.) Yearly record, 13,308.5 lbs. milk, 805.72 lbs. fat; average fat, 6.05 per cent. Four years, two months at beginning of test. State record for Jersey cows.

corn silage at the rate of 25 pounds a day; a part of the time alfalfa pasture, and from March until November green alfalfa once a day; also five pounds of dried beet pulp.

At first all were milked and fed three times a day, but as soon as the flow fell below forty pounds they were put on a twice-a-day schedule. They were fed a portion of the grain in the morning together with the silage. If they were

[3] Winner of trophy offered by A. G. C. C. for highest production by ten grade cows, sired by a registered Guernsey bull (see p. 203).

milked in the middle of the day, a little more grain was given. In the evening they had the balance of the grain, the beet pulp and the green feed. At such times as they were in pasture they went from 9 to 11 A.M. and were removed before noon. This schedule applies to all the grades and to Imp. Brittleware Wild Rose, which was also on Advanced-Register test. Under this treatment she made 9499 pounds of milk and 505 lbs. of fat in 12 months. During the same period her half-sister, Imp. Brittleware Mistletoe, was making 14,467 pounds of milk and 751 pounds of butter fat. There was little difference in the two cows and the manner of handling was largely responsible for the difference in records.

Accommodations for Advanced-Register testing are limited at our farm, which accounts for the treatment given Wild Rose. Imp. Brittleware Mistletoe was allowed a separate box stall with a small exercise yard adjoining, was fed at the rate of one pound of grain mixture (90 pounds wheat bran, 90 pounds cocoanut meal, 70 pounds rolled barley, 50 pounds of corn meal and 100 pounds of Suremilk) for three pounds of milk. Wild Rose was also fed this mixture instead of the one given the grade cows. Imp. Brittleware Mistletoe made a record which gave her eighth place among the Guernsey cows of the United States at four and a half years old. Imp. Cherry III of the Effords was accorded the same treatment as Mistletoe and made 15,567 pounds of milk and 735 pounds of butter fat in her twelve months.

In view of the treatment received by the grades their record of 478.34 actual pounds of butter fat is truly remarkable. By comparison of the records of Imp. Brittleware Mistletoe and Imp. Brittleware Wild Rose it is easy to see that certified requirements do not make for high production records.

FEEDING OF THE COMPETITION COWS

It was planned to secure complete records of the feed eaten by cows in the competition in connection with their production records so as to be able to determine, as accurately as possible, the relation between the feed consumption and the production of the cows, and the relative efficiency of the individual cows, as well as of cows of the different breeds, as producers of milk and butter fat. Unfortunately, it did not prove possible, however, to obtain sufficiently definite information in most cases as to the kinds and amount of feed eaten. Conditions growing out of the war, especially the labor situation, greatly increased the difficulties with which the breeders had to contend in carrying their cows through the competition period, and it was, in general, out of the question to keep careful detailed records of the system of feeding followed. The statements of prize winners given

Fig. 15.—High-record cows in the University Dairy herd, University Farm, Davis. Pietertje Lorena Korndyke, 217767 (Holstein); ten-month record, 16,272.3 lbs. milk, 545.084 lbs. butter fat; average fat, 3.35 per cent. (Credited production, 588.7 lbs.) Mermaiden's Fern, 269301 (Jersey), 9,920.3 lbs. milk and 527.386 lbs. butter fat; average fat, 5.32. Langwater York Rose, 24202 (Guernsey), 10,584.7 lbs. milk, 428.959 lbs. butter fat; average fat, 4.05 per cent. Korndyke Senorita, 191470 (Holstein), ten-month record, 18,111.0 lbs. milk and 638.050 lbs. butter fat; average fat, 3.52 per cent.

Fig. 15.—(See foot of page 184 for description.)

in the preceding pages doubtless illustrate the methods of feeding and management adopted by a majority of the participants whose cows completed ten-month records in the competition. Nearly all of these fed their cows concentrates and grain, or succulent feed, with alfalfa hay throughout the record period. A few breeders, among them most of those who dropped out during the progress of the competition, did not feel that they could afford to feed grain to their cows at current feed prices, and depended entirely on alfalfa hay and pasture for feeding their cows. In some cases the feeling that satisfactory records of production cannot be obtained under this system of feeding was responsible for the withdrawal from the competition, but more often the reasons were the difficulty of securing efficient help to feed and milk the cows, and business changes that became necessary. There can be no question but that dairy cows can only make the best production of which they are capable when fed concentrates along with rough feeds and that with good cows it may pay to feed even a considerable amount of concentrates, say ten pounds per head daily, or more, preferably a mixture of two or three different kinds. Most of the dairymen participating in the competition provided succulent feed for their cows, either green forage, silage, or roots, in addition to dry roughage and concentrates, and thus secured the best conditions for obtaining a maximum production from their cows.

The subject of feeding dairy cows under present feed conditions was discussed by the writer at the Dairy Farmers' Conference held at the University Farm on the occasion of the formal closing of the Dairy Cow Competition.[4] The following quotation from the paper (slightly revised) may prove of value to California dairy farmers:

It is evident that no hard and fast rule can be given for feeding concentrates with roughage. There are many factors to be considered which vary for different farmers, like cost of feeds and relative cost for different kinds of feeds, type and production of the cows in the herd, prices obtained for the products, etc. As a general proposition, it may be assumed that under present conditions concentrates can only be profitably fed to very good dairy cows and that, for the average run of cows, it will pay best to feed roughage only, either alfalfa, or preferably alfalfa and silage from Indian corn, sorghum, etc., or alfalfa and root crops, where these can be produced cheaper than silage crops, considering the yield of nutrients obtained per unit of land.

As a concrete illustration of rations that may be recommended for dairy cows of different productive capacity under present conditions the following systems of feeding are suggested:

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[4] War Time Rations for Dairy Cows, Pacific Rural Press, March 23, 1918; California Cultivator, April 20, 1918; Feeding of Concentrates should Depend on Capacity, Pacific Dairy Review, April 25, 1918.

For cows producing less than a pound of butter fat a day (or not over three gallons of milk per head):

(1) Thirty pounds of alfalfa hay (or all they will eat).

(2) Eighteen pounds alfalfa hay, 30 pounds silage (from Indian corn, milo or sweet sorghum).

For cows producing over a pound of butter fat daily:

(1) Twenty-five pounds alfalfa hay, 1 pound of concentrates for every 5 pounds of milk produced. Concentrates suggested: Wheat bran, dried beet pulp, cocoanut meal, mixed in the proportion of 2:1:1 by weight.

(2) Fifteen pounds alfalfa hay, 25 pounds silage, the same grain mixture as above in a somewhat smaller proportion, say 1 pound to every 6 pounds of milk.

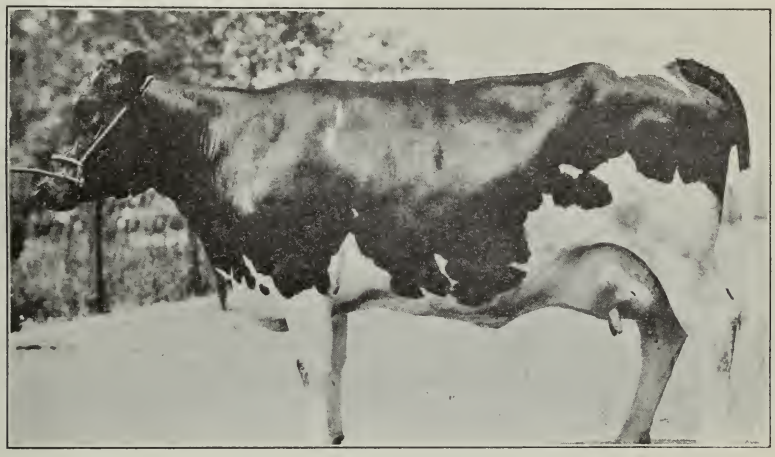

Fig. 16.—Princess Zozo Pontiac, 199936, owned by Mrs. Anita M. Baldwin, Santa Anita. Winner of fourth prize, Class B, for the highest production of butter fat by a cow during ten consecutive months, 16,533.2 lbs. milk and 587.169 lbs. butter fat; average fat, 3.55 per cent. (Credited production, 634.1 lbs.)

Other grain mixtures that may prove economical at present feed prices, under the conditions given, are: Wheat bran and dried beet pulp, equal parts by weight. Wheat bran, cocoanut meal, 3:1 by weight. Wheat bran, shorts (or middlings), ground milo (or rolled barley) and cocoanut meal, equal parts by weight. The relative cost of these feeds will largely determine the kinds and proportions of each that it is advisable to include in the grain mixture.

If grain hay is fed and not alfalfa, either of the above mixtures will be improved by adding about a pound of cottonseed or linseed meal per head, since it is necessary in this case to supplement the low-protein roughage with a grain mixture containing some high-protein concentrate; linseed meal is too expensive to be fed to dairy cows in any but small amounts, but cottonseed meal furnishes more protein for the money and, with either of the mixtures given, makes a palatable and effective grain feed. If it cannot be obtained, wheat bran and cocoanut meal mixed in the proportion of 2 or 3:1, by weight, will make a good supplement when grain hay is fed.

DECREASE IN PRODUCTION DURING LACTATION PERIOD

The purpose of the competition was to determine the production by dairy cows of different kinds in the state under as nearly normal, every-day conditions as possible. Except for the delayed breeding or failure to breed in the cases of about 24 per cent of the number of cows entered (p. 164), it is believed that the production by the cows represents the best practice of California dairy farmers and breeders at the present time. As such, it is of interest to ascertain the rate of decrease in production during the lactation period or the ten months of the competition. The average production for each month during the period was accordingly compiled for all cows that were entered, within the first week or two after freshening, and that finished a nine or ten-month record period. The results are given in Table XI which also shows the percentage decrease in the production of milk and butter fat for each month of the lactation period.

TABLE XI

DECREASE IN PRODUCTION DURING LACTATION PERIOD

	Ave. daily production				Decrease in production			
		Butter fat,			Milk,		Butter fat,	
Month	Milk, lbs.	lbs.	per cent	No. of cows	Lbs.	Per cent	Lbs.	Per cent
1	46.4	1.95	4.20	236	----	----	----	----
2	46.7	1.98	4.24	236	.3*	1*	.03*	1*
3	42.6	1.81	4.25	236	4.1	9	.17	9
4	39.7	1.72	4.33	236	2.9	7	.09	5
5	36.8	1.62	4.40	236	2.9	7	.10	6
6	34.4	1.52	4.42	236	2.4	7	.10	6
7	31.3	1.42	4.54	236	3.1	9	.10	7
8	28.0	1.29	4.61	236	3.3	11	.13	9
9	25.5	1.19	4.67	228	2.5	9	.10	8
10	22.7	1.07	4.71	149	2.8	11	.12	10

* Increase.

Average distance from calving at beginning of first month, 12 days.

The compilations of the average production by the competition cows for the different months given in the table show that the 236 cows in milk for a period of eight months or more, yielded on the average 46.4 pounds (about 5½ gallons) of milk during their first month in the competition and 22.7 pounds the last month; the yield of butter fat being 1.95 and 1.07 pounds for the first and the last month, respectively. During the second month, a slightly larger production was obtained than during the first month, but with the third month and on, a somewhat regular decrease in production occurred

of 7 to 11 per cent in milk yield and 5 to 10 per cent in the yield of butter fat, the more rapid decrease occurring toward the end of the record period.

Ten months after freshening, 149 cows still yielded an average of over 2½ gallons of milk and a pound of butter fat per head daily. These cows were largely pure-breds on Advanced-Registry tests for yearly records and included those barred from competing for prizes on account of not being bred within five months from calving. Normally, they would be well along in the gestation period at the end of ten months and their milk flow would have gone down greatly prior to being dried off during the following month. The percentage decrease in the production for the last couple of months given in the

Fig. 17.—Group of grades owned by Bohnett Bros., Campbell. Winner of Pacific Rural Press prize for December, 1916. Average production of butter fat, 49.319 lbs.

table is, therefore, considerably lower than that which will be found in the case of cows kept under normal dairy conditions and bred so as to drop a calf at an interval of about a year. The decrease in production obtained for the earlier part of the lactation period is similar to that found elsewhere,[5] and shows the extent to which good dairy cows, fed and cared for according to the best modern dairy methods, are able to maintain their production during the progress of the lactation.

GENERAL DISCUSSION

The California State Dairy Cow Competition was conducted by the California Agricultural Experiment Station primarily as an educational effort, to establish the value of production records of dairy

[5] Wisconsin Experiment Station, Bulletin 102, Research Bulletin 26; Geneva (New York) Experiment Station, Report 1886, 21; Kentucky Experiment Station, Bulletin 106.

cows to the dairymen of the state, and to bring home to them the possibilities of good cows, whether pure-breds or grades, for a large dairy production under California conditions. In this respect, the competition accomplished, in a large measure, what was intended. The records of production published each month throughout the competition period, with the awards of monthly prizes, were followed with keen interest, not only by those participating in the competition, but by all interested in dairying and in the advancement of the dairy industry of the state.

The results obtained in the competition show the quality of dairy cows of different breeds in the state, and what can be accomplished under our conditions by intelligent methods of feeding and management of dairy herds. It is idle to speculate on what it would mean to the state if all our cows were fed and handled so as to secure the best results with them, or better still, if modern dairy methods were adopted in the management of all dairy herds. Progress in matters of this kind depends on many factors, some of them beyond human control, and is therefore necessarily slow, but the data secured in the competition clearly indicate the road to progress, and a study of the results and the conditions under which these were obtained, as suggested in the preceding pages, should be of the greatest value to all dairy farmers.

The records made by the pure-bred cows in the competition show that it is not necessary for California dairymen to go outside of the state for breeding stock, because cows of the highest type and productive capacity, of all the important dairy breeds, are found within our borders.

The production by the grade cows in the competition furnishes a most hopeful illustration of the value of the methods of dairying by which advancement may be made; *first,* by placing a good pure-bred dairy bull at the head of the herd; *second,* by production tests of all cows in the herd and subsequent culling out of those that do not yield enough milk to be profitable dairy animals; and *third,* by feeding the cows liberally throughout the year, whether dry or not, so that they may be able to reach the largest production of which they are capable.

In this work of herd improvement, the standard to be aimed at will vary with the quality of the herd; to begin with, an average of a pound of butter fat a day (or 2½ to 3 gallons of milk of average fat content a day) for the lactation period or for the year is none too high under present conditions of high wages and feed prices. This standard may be gradually raised to 400 pounds for the lactation period for all mature cows and possibly for all the cows in the herd.

That such an average production is within the reach of any dairy farmer who is ambitious to succeed is clearly shown by the results obtained with the herds in the cow-testing associations competing for the California Cultivator prizes. Three of these averaged over 485 pounds of butter fat during the year for all cows and heifers in the herd that were in milk for six months or more, and all herds yielded over 340 pounds of butter fat, the herd with the latter average production including 101 cows.

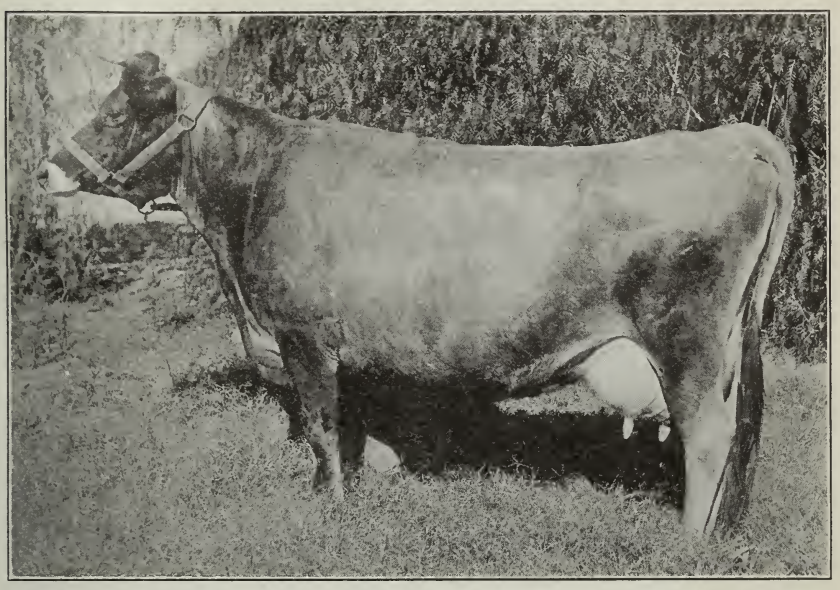

Fig. 18.—Fern's Silver Ray, 305081, owned by F. H. Van Derpoel, El Centro. Ten-month record, 12,832.5 lbs. milk, 668.541 lbs. fat; average fat, 5.21 per cent. Yearly record, A. J. C. C., 779.544 lbs. butter fat.

The average production by the dairy cows in the state at present is not over 150 pounds of butter fat per head annually. With the dairy herds referred to showing an average production of over 125 per cent in excess of this average, is it not worth while for owners of *average* dairy herds who comprise the rank and file of our dairymen, to adopt in so far as they may, similar methods to those followed by the breeders and dairymen whose cows were entered in the competition, and thus aim at increasing the production of the herds by at least 50 per cent or more. Fifty per cent of 150 is 75. This amount of butter fat is now worth, in the case of a dairy of, say 25 cows, over $900, and for the one-half million dairy cows that furnish the state

with its dairy products, it would mean an increase of $18,500,000 in the annual income from our dairies.

The objects of the California State Dairy Cow Competition will only be attained when the results reached therein will convince an ever-increasing number of our dairy farmers that improvement is possible and will enable them to realize larger returns for their investment and labors than is now generally the case. There never was a greater need of adopting modern methods of dairying than at the present time, nor better chances for improvement, as farmers may readily profit by the wonderful development of dairy cattle by using pure-bred bulls in their herds. The striking results obtained in the competition were accomplished through this and other simple means, to which attention has been called in the preceding pages. The three most important of these might well be adopted as the creed of the modern dairy farmer:

A pure-bred dairy bull at the head of the herd.
Disposal of all "slackers" in the herd.
Feeding the cows so as to secure the highest possible production and net returns from the herd.

Fig. 19.—Willowmoor Vesta 4th, 34150, Ayrshire; owned by E. B. McFarland, San Mateo. Winner of trophy offered by Pacific Rural Press, San Francisco, for the highest record by a registered Ayrshire cow. Production, 14,100.9 lbs. milk, 612.057 lbs. butter fat; average per cent butter fat, 4.24. (Credit for production of butter fat, 661.0 lbs.)

APPENDIX

NOTE.—Ays., Ayrshire; G., Guernsey; H., Holstein; J., Jersey; Gr., grade. B, barred from competing for prizes on account of breeding record.

EXPLANATION OF NOTES.—Star (*) indicates 8 months' record; the dagger (†), 6½ months; double dagger (‡), 9 months; section (§), 7 months.

TEN-MONTH RECORDS, CALIFORNIA STATE DAIRY COW COMPETITION, 1916–1918

Owner and name of cow	Age, Y–M	Days in milk at beg. of record	Milk, lbs.	Butter fat		Total credit for butter fat, lbs.
				lbs.	ave. %	
Baldwin, Mrs. A. M., Santa Anita						
Alba Sadie Cornucopia Greetia, H.	7– 4	7	17,627.5	632.136	3.58	632.1
Mabel Wyntje 2d, H.	9	6	18,495.0	631.874	3.42	631.9
Princess Zozo Pontiac, H.	4– 4	6	16,533.2	587.169	3.55	634.1
Rhedon of Bloom, H.	2– 4	6	14,074.3	582.976	4.14	757.9B
Mabel Aouda, H.	5– 3	6	16,741.1	515.962	3.08	516.0
Beebe, Floyd, Esparto						
Blackie, Gr. J.	7	5	11,663.5	513.482	4.40	513.5
Irene, Gr. J.	6	17	11,109.9	506.080	4.56	506.1
Rosie, Gr.	11	5	13,710.0	485.623	3.54	485.6B
Mazie, Gr. J.	6	7	12,248.7	447.135	3.65	447.1‡
Tessie, Gr. J.	2–11	12	11,073.2	457.512	4.13	567.3B
Little Jersey, Gr. J.-H.	2– 6	7	7,608.4	407.699	5.36	505.5B
Brownie, Gr. J.	4	5	10,183.5	395.625	3.88	427.3B
Ruth, Gr. H.	12	6	10,309.9	393.897	3.82	393.9B
Olga Petrovia, Gr. J.	4	6	9,391.4	368.128	3.92	397.6B
Jessie, Gr. J.-H.	1–11	5	9,358.3	325.736	3.48	423.5B
Lena, Gr. H.	1–11	5	7,803.5	280.631	3.60	364.8
Toots, Gr. J.-D.	2	17	7,321.4	277.714	3.79	361.0
Bibens, A. M., Modesto						
Abbie De Kol of East Bank II, H.	5– 3	5	18,360.7	656.606	3.58	656.6
Holland Aaggie Belle Colantha, H.	7– 9	5	19,530.8	579.544	2.97	579.5
Leda De Kol Ormsby, H.	4– 9	5	15,527.1	479.939	3.09	503.9
Bohnett Bros., Campbell						
Spot, Gr. J.-H.	5	5	10,135.6	566.669	5.59	566.7
Cecil, Gr. J.-H.	3	6	7,650.0	430.009	5.62	507.4
Tillie, Gr. H.	7	10	12,373.2	425.549	3.43	425.5
Flossy, Gr. J.	9	5	9,010.2	421.685	4.68	421.7
Dorris, Gr. H.	7	60	9,563.1	404.131	4.23	404.1
Murne, Gr. J.	5	5	7,430.5	400.435	5.39	400.4
Daisy, Gr. J.	4	8	8,537.2	395.902	4.64	427.6
Nancy, Gr. J.	5	11	8,627.2	392.279	4.55	392.3
Fayne, Gr. J.	6	5	9,525.4	394.362	4.14	394.4
Reddie, Gr. S.	7	8	8,161.3	363.484	4.45	363.5B
Baldy, Gr. J.	2– 2	5	5,580.4	277.684	4.97	361.0
Maud, H. Gr.	6	5	5,591.7	273.240	4.89	273.2
Alba, Gr. J.	4	15	5,624.5	226.237	4.02	244.3*

Owner and name of cow	Age, Y–M	Days in milk at beg. of record	Milk, lbs.	Butter fat lbs.	Butter fat ave. %	Total credit for butter fat, lbs.
Bomberger, J. M., Modesto						
Rose, Gr. J.	8	6	10,458.9	520.161	4.97	520.1
Edith, Gr. J.	5	8	10,704.2	496.787	4.54	496.8
Lula, Gr. J.	9	5	10,440.3	487.561	4.67	487.6
Pansy, Gr. J.	5	5	9,730.0	486.248	5.00	486.2
Pedralida, J.	15	2	8,089.4	439.282	5.43	439.3
Nina, Gr. J.	7	5	7,640.2	405.276	5.30	405.3
Pet of Green Gold, J.	3	20	5,567.7	353.615	6.17	417.3
Hope of Green Gold, J.	2–10	5	5,718.5	334.509	5.85	415.1
Loretta of Green Gold, J.	2–11	9	5,111.1	330.760	6.47	410.1
Christen, J. M., Pacheco						
Aralia De Kol Youngfer, Gr. H.	3– 7	5	6,261.6	284.740	4.55	327.5
Marion 1st De Kol, Gr. H.	5	5	6,967.5	269.450	3.87	269.5
Marion 2d De Kol, Gr. H.	3–10	5	6,981.3	237.455	3.40	273.1
Snail De Kol, Gr. H.	4	21	5,272.9	235.788	4.47	254.7‡
Alcartra Youngfer De Kol, Gr. H.	2– 8	5	5,777.8	230.791	3.99	286.2
Shilie De Kol, Gr. H.	5	6	5,182.3	225.529	4.35	225.5*
Comedia Soldene Heng., H.	8–10	6	6,663.4	220.585	3.31	220.6‡
Mayflower Walker, Gr. H.	6	5	6,014.8	198.872	3.36	198.9B
Gretchen Sarcastic, Gr. H.	1– 9	5	5,340.2	192.086	3.60	249.7
Curly Ear De Kol, Gr. H.	4	5	6,242.6	174.631	2.80	188.6
Idlewild Sarcastic, Gr. H.	2	16	4,149.6	144.337	3.48	187.6‡
Black Bird De Kol, Gr. H.	3	5	4,043.6	136.128	3.37	160.6
Coppini, J. W., Ferndale						
Beauty 1st, Gr. J.	8	5	9,792.7	589.548	6.02	589.5
Lady Mac, Gr. J.	12	5	12,474.4	583.704	4.67	583.7
Florinda, Gr. J.	5–10	5	9,076.7	568.680	6.27	568.7
Little Surprise, Gr. J.	5– 1	5	9,629.9	559.215	5.81	559.2
Princess 2d, Gr. J.	6–10	5	9,820.3	550.929	5.53	550.9
Gertie Olga of Ferndale, J.	3–11	5	8,888.9	500.993	5.64	576.1
Marigold Olga Ann, J.	7–11	5	9,104.6	495.017	5.44	495.0
Beauty 2d, Gr. J.	6	5	8,991.9	494.711	5.50	494.7
Dina, Gr. J.	8	5	8,765.3	492.163	5.61	492.2
Grace, Gr. J.	6	5	9,113.6	490.838	5.39	490.8
Marigold of Fern., J.	5– 1	5	8,167.1	487.259	5.97	487.3
Olga Fern Smith, J.	5–11	5	8,358.3	472.362	5.65	472.4
Rosalee, Gr. J.	11	5	7,281.9	466.181	6.40	466.2
Olga Darling, J.	2–11	5	7,364.8	441.642	6.00	547.6
Pride of California, J.	3	5	7,028.1	435.815	6.20	514.3
Bellina Darling, J.	5– 1	5	7,668.7	426.849	5.56	426.8
Tormentor's Easter Lily, J.	5	5	6,926.6	415.515	6.00	415.5
Dandy, Jr., Gr. J.	2	5	6,978.7	409.735	5.87	532.7
Melia Olga Pogis, J.	2–11	5	6,622.4	382.319	5.77	474.1
Rosette, Gr. J.	5	5	5,586.9	319.367	5.72	319.4
Little Glynlyn, J.	6– 8	5	5,795.6	300.378	5.18	300.4

Owner and name of cow	Age, Y–M	Days in milk at beg. of record	Milk, lbs.	Butter fat		Total credit for butter fat, lbs.
				lbs.	ave. %	
Dupee, W. H., Santee						
Jesebel of Edgemoor, G.	2– 7	5	10,707.3	632.140	5.89	783.9B
Imp. Snowdrop III of Havilland, G.	3	23	11,072.9	589.110	5.32	695.2B
Jessy Rose of Edgemoor, G.	2– 8	26	7,859.5	474.645	6.29	588.6B
Elliott-Brant Rancho						
Butternut Queen, G.	8– 1	5	11,855.0	608.893	5.14	608.9B
Little Beauty 2d, G.	4– 1	6	10,083.8	532.766	5.23	575.4
Elsie Argie Granger, G.	5	5	8,852.4	476.323	5.38	476.3
Victime of Iowa, G.	5– 2	5	7,943.4	400.395	5.04	400.4B
Nerio's Elsie Granger, G.	4– 1	5	6,782.5	370.501	5.46	400.1
Lady Red 2d, G.	11	5	7,558.9	348.023	4.61	348.0
Imp. Hayes Sweet Marjoram, V, G.	3–10	5	7,234.2	336.601	4.65	387.1B
Grice, C. R., Del Mar						
Yeksa Poppy of Bella Vista, G.	4– 7	10	7,038.4	301.216	4.28	316.3
Golden Buttercup of Bella Vista, G.	4– 3	13	6,009.9	292.854	4.87	316.3
Lita of Bella Vista, G.	2– 3	5	5,158.7	254.897	5.13	344.4
Gross, H. G., Eureka						
Cynthia of Butter Valley, J.	3– 6	5	8,126.4	390.186	4.80	460.4
Marian of Butter Valley	4–10	5	6,905.3	375.804	5.44	394.6
Old's Golden Eminent, J.	3–11	37	5,005.1	304.048	6.07	349.7
Undulata Gussie Lee, J.	3–11	5	5 772.8	286.592	4.96	329.6
Butter Valley Tulip J.	2– 8	62	4 902.7	283.931	5.79	352.1B
Fairy Lad's Mabel 2d, J.	3–11	24	4,041.7	276.639	6.85	318.1
King's Lady Maggie, J.	7– 3	5	5,815.6	275.227	4.73	275.2*
Butter Valley Maggie, J.	2– 8	44	4,608.7	259.157	5.62	321.4
Guise, H. J., Davis						
Guise Beauty, Gr. J.	5	9	7,643.4	430.016	5.63	430.0B
Henderson, J. W., Berkeley						
Clementine Mabel, G.	11–11	10	10,957.8	495.275	4.52	495.3B
Kitchener's Clementine of Belle Vista, G.	2– 1	5	11,336.9	445.220	3.93	578.8B
Rancho Morning Rose, G.	4– 8	5	9,048.0	406.207	4.49	426.5
Golden Idelia of Belle Vista, G.	3– 4	5	7 597.0	338.654	4.85	435.0
Hewins, Homer, Calistoga						
Pauline of Broom, H.	6– 7	8	9,735.7	361.300	3.71	361.3‡
Silver Gloss Poplar 2d, H.	7	5	9,042.9	328.386	3.63	328.4§
Hollow-Hill Farm, Colton						
Imp. Britleware Mistletoe, G.	4– 9	6	12,691.2	651.403	5.13	684.0B
Imp. Cherry of the Effords III, G.	4– 7	20	13 081.8	614.841	4.69	645.6B

Owner and name of cow	Age, Y–M	Days in milk at beg. of record	Milk, lbs.	Butter fat		Total credit for butter fat, lbs.
				lbs.	ave. %	
Hollow-Hill Farm, Colton						
No. 458, Gr. G.	5– 2	5	8,794.8	563.643	6.41	563.6B
No. 811, Gr. G.	4	16	11,561.2	558.024	4.83	602.7
No. 459, Gr. G.	6	9	8,804.0	527.407	5.99	527.4
No. 481, Gr. G.	5– 2	10	8,564.5	497.852	5.81	497.9B
No. 812, Gr. G.	4	18	9,380.7	489.422	5.22	528.6B
No. 482, Gr. G.	4– 9	5	8,942.8	466.496	5.22	489.8
Imp. Brittleware Wild Rose, G.	4–11	7	8,597.8	461.522	5.37	484.6B
No. 476, Gr. G.	5– 1	8	10,704.4	455.735	4.26	455.7
No. 480, Gr. G.	4– 9	6	9,680.3	436.302	4.51	458.1
No. 460, Gr. G.	....	6	8,196.9	398.762	4.86	398.8
No. 485, Gr. G.	4– 5	15	7,387.7	389.744	5.27	420.9
No. 478, Gr. G.	4–11	13	5,039.0	272.627	5.41	286.3*
Iversen, Iver, Arcata						
Roan Cow, Gr. G.	7	13	13,179.4	685.840	5.20	685.8
Donahue, Gr. H.	7	5	14,207.7	573.677	4.04	573.7
Little Red Cow, Gr. J.	7	14	11,359.0	571.621	5.03	571.6
Bony, Gr. J.	5–11	19	9,553.7	567.601	5.94	567.6
Babe, Gr. J.	6	16	10,313.4	562.571	5.45	562.6
Little Guernsey, Gr. G.	9	10	10,767.1	555.736	5.16	555.7
Jeffrey's Brownie Gr. J.	7	15	9,939.4	544.439	5.48	544.4
Kern's Holstein, Gr. H.	10	10	10,608.2	532.995	5.02	533.0
MacFarland, Gr. G.	3	18	10,079.2	517.201	5.13	610.3
Little Browne, Gr. J.	8	7	8,522.5	494.721	5.80	494.7
Big Brindle, Gr. J.	5	17	9,979.4	487.788	4.89	487.8
Silky, Gr. J.	3	12	8,911.3	473.966	5.32	559.3
Foster's Jersey, Gr. J.	5	15	7,516.6	432.526	5.75	432.5
Foster's Brindle Jersey, Gr. J.	5	16	8,949.8	401.221	4.48	401.2
Anderson's Spotted, Gr. G.	5	14	8,872.3	398.081	4.49	398.1
Kell, F. J., Stockton						
Creamcup Poybe, H.	5–10	7	16,562.7	521.357	3.15	521.4
McFarland, E. B., San Mateo						
Willowmoor Vesta 4th, Ayr.	4– 5	64	14,100.9	612.057	4.34	661.0B
Mealey, S. A., Gridley						
Beauty, Gr. H.	5	45	12,840.1	465.950	3.62	466.0B
Miller, Guy H., Modesto						
Goldie of Venadera, J.	7– 1	5	10,725.2	515.822	4.80	515.8
Lorita of Venadera, J.	10– 2	5	7,730.2	470.449	6.08	470.4
Juanita of Venadera, J.	8– 7	6	7,157.7	448.833	6.25	448.8B
Gladys of Venadera, J.	4– 7	5	7,140.9	438.461	6.14	460.4B
Lorna of Venadera, J.	12– 8	5	8,987.8	438.305	4.87	438.3
Pearl of Venadera, J.	10– 6	64	7,186.9	433.288	6.02	433.3
Fern of Venadera, J.	5– 4	5	7,008.4	330.876	4.72	330.9
Annette of Venadera, J.	6– 7	5	8,431.3	422.151	5.01	422.2
Wanda of Venadera, J.	10– 3	72	6,706.4	416.319	6.20	416.3
Zama of Venadera, J.	1–11	5	6,722.1	330.823	4.92	430.1
Stella of Venadera, J.	3– 1	31	6,290.1	319.472	5.08	377.1
Lora of Venadera, J.	2– 2	67	6,522.4	308.788	4.73	401.4B
Martha of Venadera, J.	2	12	4,671.4	267.348	5.72	347.6

Owner and name of cow	Age, Y–M	Days in milk at beg. of record	Milk, lbs.	butter fat		Total credit for butter fat, lbs.
				lbs.	ave. %	
A. W. Morris & Sons Corp., Woodland						
Aaggie Acme of Riverside 2d, H.	6– 1	5	22,087.7	928.813	4.21	928.8B
Aralia De Kol Mead, H.	5– 7	5	19,844.7	829.681	4.19	829.7B
Miss Valley Mead DeK. Walker, H.	3– 4	30	20,690.3	819.421	3.96	966.9
Pauline Creamelle Mercedes, H.	8– 7	5	22,814.2	759.761	3.33	759.8
Hartog Creamelle De Kol, H.	7– 5	5	24,201.7	758.086	3.13	758.1
Aralia De Kol 3rd, H.	6– 2	5	21,244.3	753.126	3.55	753.1B
Margaret Aralia De Kol, H.	5– 6	5	18,462.4	745.761	4.04	745.8B
Lady Mead Salambo, H.	6– 7	5	19,511.6	662.071	3.39	662.1B
Aralia De Kol Pontiac Mead, H.	2– 7	5	15,925.2	628.270	3.95	779.0
Miss Dutch 2d, H.	4– 8	5	16,082.9	557.493	3.47	585.4
Miss Gelsche Walker Korndyke, H.	2– 4	6	14,757.4	526.472	3.57	684.4
Linden Spofford Walker, H.	2– 1	6	14,447.6	508.615	3.52	661.2B
Heil Pontiac Mechthilde, H.	6	5	15,129.3	502.674	3.32	502.7
Aralia Meade Pontiac De Kol, H.	2– 7	5	15,534.2	484.412	3.11	600.7
Cobossie Korndyke Burke, H.	2– 3	5	13,834.4	441.716	3.19	574.2
Queen Pontiac Charlotte, H.	5	5	12,671.0	421.827	3.33	421.8
Creamcup Electra Pontiac 2d, H.	2–11	5	12,964.4	409.235	3.16	507.5
Napa State Hospital, Napa						
N. S. H. Monte 1st, Gr. H.	6	7	20,596.4	762.287	3.70	762.3
No. 15, Gr. H.	6	5	17,278.9	605.724	3.51	605.7
No. 29, Gr. H.	5	5	14,474.1	526.479	3.64	526.5B
N. S. H. Brownie, Gr. H.	6– 7	20	15,872.1	497.165	3.13	497.2
N. S. H. Beauty, Gr. H.	3	11	14,292.0	491.345	3.43	565.0
No. 68, Gr. H.	4	11	17,369.0	487.492	2.81	526.5
N. S. H. Queen, Gr. H.	7	31	15,665.8	485.519	3.09	485.5
No. 30, Gr. H.	4	49	14,907.8	485.073	3.25	523.9
Shy Lady, Gr. H.	3	11	15,357.5	459.204	3.02	541.9
Lady Ormsby Burke, H.	3–11	15	14,216.3	458.883	3.23	527.7B
No. 67, Gr. H.	4	15	12,004.2	451.579	3.76	487.7*
Palo Alto Stock Farm, Palo Alto						
Roxie Pauline Burke Hengerveld, H.	6– 3	5	21,871.2	809.780	3.70	809.8B
Jennie Terzool Hicks 4th, H.	7– 9	5	21,445.0	764.938	3.57	764.9
Imp. President's Doris of Lewison, G.	7	7	13,482.3	690.160	5.12	690.2B
May Wa Wa De Kol Burke, H.	6–11	5	21,305.6	668.303	3.14	668.3B
Kitchener's Dainty Lass, G.	5– 7	5	11,443.1	644.103	5.63	644.1B
Ninette Aine Pauline, H.	5– 1	6	16,689.5	603.615	3.62	603.6†B

Owner and name of cow	Age, Y–M	Days in milk at beg. of record	Milk, lbs.	Butter fat		Total credit for butter fat, lbs.
				lbs.	ave. %	
Palo Alto Stock Farm						
Mysie's Jane of Alta Visto, G.	7	7	13,065.2	586.913	4.49	586.9B
Imp. England's Lady Orange, G.	5– 6	15	11,320.0	585.818	5.18	585.8
Mousie De Kol Lady 2d, H.	5– 8	10	18,639.6	540.329	2.89	540.3B
Sieg's Finale, G.	7– 8	5	10,488.5	460.719	4.39	460.7
Southern Cal. State Hospital, Patton						
No. 97, Gr. H.	4	54	12,467.9	440.252	3.53	462.3
No. 28, Gr. H.	10	62	12,003.0	424.153	3.53	424.2
No. 33, Gr. H.	7	56	12,918.1	405.370	3.14	405.4
No. 68, Gr. H.	7	15	11,338.9	377.738	3.33	377.7
No. 113, Gr. H.	3	26	10,793.8	366.035	3.39	420.9
No. 119, Gr. H.	3	113	10,729.1	325.484	3.03	374.3
No. 110, Gr. H.	3	19	10,208.5	303.766	2.98	349.3
No. 106, Gr. H.	4	21	8,987.7	288.455	3.21	302.9
Stenzel, F., San Lorenzo						
Alice, Gr. H.	5	5	20,099.4	729.186	3.63	729.2
Blackie, Gr. H.	5	16	18,130.2	621.245	3.43	621.2
Hilde, Gr. H.	5	17	18,298.6	616.518	3.37	616.5
Janette, Gr. H.	5	11	18,141.3	577.791	3.19	577.8
Rosa, Gr. H.	5	16	15,418.9	515.661	3.34	515.7
Fannie, Gr. H.	5	27	15,952.2	496.312	3.11	496.3B
Spot Teat, Gr. H.	3	20	14,812.9	485.496	3.28	572.9B
Rumpy, Gr. H.	5	9	16,054.0	473.132	2.95	473.1
Carmelita, Gr. H.	3	28	13,154.4	471.265	3.58	556.1
Spot, Gr. H.	3	13	14,027.2	453.335	3.23	534.9
Brownie, Gr. H.	5	12	12,424.7	448.896	3.61	448.9
Dixie, Gr. H.	3	5	13,563.7	436.599	3.22	515.2
Trigg, G. E., Ferndale						
Brindle, Gr. J.	8	5	13,425.6	632.443	4.71	632.4
Queen, Gr. J.	....	5	10,260.0	595.333	5.80	595.3
Vaida, Gr. J.	....	5	9,884.1	576.136	5.82	576.1
Irene, Gr. J.	....	5	9,582.9	569.575	5.94	569.6
Reddy, Gr. J.	....	5	11,801.9	565.750	4.79	565.8
Mabel, Gr. J.	....	5	9,947.1	558.511	5.61	558.5
Martha, Gr. J.	9	5	9,979.1	555.530	5.57	555.5
Fanny, Gr. J.	....	5	8,501.5	554.491	6.52	554.5
Lady Fern, Gr. J.	....	5	8,505.4	532.303	6.25	532.3
Beauty, Gr. J.	11	5	8,695.0	503.947	5.80	503.9
Juanita, Gr. J.	2– 8	8	8,199.1	501.589	6.12	622.1
Frances, Gr. J.	....	5	9,488.6	498.477	5.26	498.5
Betsy, Gr. J.	11	5	9,482.6	484.515	5.11	484.5
Hilda, Gr. J.	....	5	7,319.3	475.427	6.50	475.4
Bonnie, Gr. J.	2– 1	5	7,507.3	464.266	6.18	575.7
University Farm, Davis						
Interested Jap's Santa, J.	4– 2	5	12,108.5	703.369	5.49	759.6B
Korndyke Senorita, H.	6– 2	5	18,111.0	638.050	3.52	638.1B
Pietertje Lorena Korndyke, H.	4– 2	5	16,272.3	545.084	3.35	588.7B
Mermaiden's Fern, J.	8– 2	5	9,920.3	527.386	5.32	527.4B
Cherry, Gr. S.	....	5	11,611.1	464.078	4.00	464.1B
Fern Ridge Pearl, G.	7– 3	6	8 262.0	451.782	5.47	451.8B
Meridale Jap's Nora, J.	4– 6	5	8,114.2	429.876	5.27	451.4B

Owner and name of cow	Age, Y–M	Days in milk at beg. of record	Milk, lbs.	Butter fat, lbs.	Butter fat, ave. %	Total credit for butter fat, lbs.
University Farm, Davis						
Langwater York Rose, G.	9– 6	5	10,584.7	428.959	4.05	429.0B
Agnes Colantha, H.	5– 3	9	10,355.2	404.296	3.84	404.3
Willowmoor Cherry, Ayr.	7– 6	29	8,236.7	381.195	4.63	381.2
California Inka Colantha, H.	3– 3	5	8,452.4	341.706	4.04	403.2
University La Polka Lady, H.	9– 4	6	9,506.4	334.206	3.52	334.2B
Queen of Hopland, H.	10– 2	5	8,661.0	302.618	3.49	302.6†
California Juliana De Kol, H.	2– 9	5	7,318.8	286.506	3.91	355.3
California Jap's Nora, J.	2– 1	29	3,761.2	216.628	5.76	281.6*B
Van Derpoel, F. H., El Centro						
Fern's Silver Ray, J.	7–11	5	12,832.5	668.541	5.21	668.5B
Fern's Lowland Lassie, J.	7– 8	5	9,569.0	441.040	4.61	441.0B
Fern's Sylvana, J.	8– 6	5	7,464.5	427.384	5.73	427.4
Fern's May Be, J.	7– 6	5	8,578.3	420.568	4.90	420.6
Lowland Lad's Lily, J.	12–11	5	8 021.9	413.292	5.15	413.3B
Welch, A. J., Redwood City						
Imp. Acadia of Linwood, G.	4– 2	5	8,570.7	531.474	6.20	574.1
Imp. Amy of Ore Hill, G.	4– 2	7	8 094.7	437.887	5.41	472.9
Imp. Alcia of Linwood, G.	4– 8	5	8,852.7	489.728	5.53	514.2
Imp. Governor of the Chene's Herald Queen, G.	4– 2	5	9,286.8	431.545	4.65	466.1
Raymond's Lily of St. Savior's, G.	5– 1	38	9,040.0	411.551	4.55	411.6

AWARD OF PRIZES IN THE CALIFORNIA STATE DAIRY COW COMPETITION, 1916–18

NOTE.—Heifers and cows below five years old were allowed credits of 5 to 30 per cent, according to their age, so as to make the production comparable in all cases (p. 163).

Many cows were barred from consideration in the award of prizes on account of not being safely in calf before the end of the fifth month after calving (p. 164).

1. *Herd Prizes.—For the highest production of butter fat by ten cows in a herd during ten consecutive months.*

		Lbs. butter fat, Actual	Lbs. butter fat, Credit
Class A, Jerseys or Guernseys.			
1st prize, $300.	J. W. Coppini, Ferndale	435.85	470.95
2nd " 200.	Guy H. Miller, Modesto	394.49	418.18
Class B, Holsteins.			
1st prize, $300.	A. W. Morris & Sons' Corp., Woodland	588.75	671.86

Class C, Other breeds and grades.

1st prize,	$300.	G. E. Trigg, Ferndale	557.36	580.54
2nd "	200.	Iver Iversen, Arcata	558.56	576.41
3rd "	100.	F. Stenzel, San Lorenzo	534.36	558.86
4th "	50.	J. W. Coppini, Ferndale	520.57	532.86

2. *Individual Prizes.—For the highest production of butter fat by a cow during ten consecutive months.*

Class A, Jerseys or Guernseys.

1st prize,	$200.	Palo Alto Stock Farm, Palo Alto (Imp. England's Lady Orange, (G.)	585.82	585.82
2nd "	100.	J. W. Coppini, Ferndale (Gertie Olga of Ferndale, J.)	500.99	576.14
3rd "	50.	Elliott-Brant Rancho, Owensmouth (Little Beauty 2d, G.)	532.77	575.39
4th "	25.	A. J. Welch, Redwood City, Imp. (Acadia of Linwood, G.)	531.47	573.99

Class B, Holsteins.

1st prize,	$200.	A. W. Morris & Sons' Corp., Woodland (Miss Valley Mead De Kol Walker)	819.42	966.92
2nd "	100.	Palo Alto Stock Farm, Palo Alto (Jennie Terzool Hicks 4th)	764.94	764.94
3rd "	50.	A. M. Bibens, Modesto (Abbie De Kol of East Bank 2d)	656.61	656.61
4th "	25.	Mrs. Anita M. Baldwin, Santa Anita (Princess Zozo Pontiac)	587.17	634.14

Class C, Other breeds and grades.

1st prize,	$200.	Napa State Hospital, Napa (Monte 1st, Gr. H.)	762.29	762.29
2nd "	100.	F. Stenzel, San Lorenzo (Alice, Gr. H.)	729.19	729.19
3rd "	50.	Iver Iversen, Arcata (Roan Cow, Gr. J.)	685.84	685.84
4th "	25.	G. E. Trigg, Ferndale (Brindle, Gr. J.)	632.44	632.44

Special Prizes

A. Pure-bred Bull Calves

1. *For the highest average production of butter fat during ten consecutive months, by a grade herd of ten to twenty-five cows headed by a pure-bred sire.*

Choice of an Ayrshire, Guernsey, Holstein, or Jersey bull calf, offered respectively by J. W. Clise, Seattle; A. B. Humphrey, Mayhews; K. W. Abbott, Milpitas, and N. B. Locke Co., Lockeford.

		Lbs. butter fat	
		Actual	Credit
1st prize,	F. Stenzel, San Lorenzo	534.36	558.86
2nd "	G. E. Trigg, Ferndale*	537.88	553.3
3rd "	Iver Iversen, Arcata	519.99	531.9
4th "	J. W. Coppini, Ferndale	502.28	513.5

2. *For the highest average production of butter fat during ten consecutive months, by a grade herd of more than ten cows, headed by a pure-bred sire.*

Choice of an Ayrshire, Guernsey, or Jersey bull calf, donated respectively by E. B. McFarland, San Francisco;† W. A. Saylor, San Francisco; C. G. McFarland, Tulare;† and of $100 worth in pure-bred Guernsey or Hampshire males, donated by Dr. J. W. Henderson, Berkeley.

	Lbs. butter fat Actual	Credit
1st prize, Bohnett Bros., Campbell	384.02	401.56
2nd " J. M. Christen, Pacheco	219.37	242.29

B. Milking Machines, Cream Separators, Feed

3. *For the two herds having the largest and next to the largest number of cows producing over 300 pounds of butter fat in ten consecutive months.*

Two prizes, choice of a two-unit outfit of the "Calf-Way" Milker, donated by the "Calf-Way" Milker Co., Chicago, and a two-unit Sharples Mechanical Milker, donated by the Sharples Separator Co., West Chester.

1st prize, J. W. Coppini, Ferndale, 21 records.

2nd " G. E. Trigg, Ferndale, 15 records.

4. *For the highest average production of butter fat by ten cows in a grade herd.*

Five prizes (winner of first three cash prizes barred), choice of

A No. 35 Iowa Cream Separator, capacity 850 pounds per hour, donated by the Associated Manufacturers Co., Waterloo, Iowa.

A No. 5 Simplex Cream Separator, capacity 500 pounds per hour, donated by Baker-Hamilton & Pacific Co., San Francisco.

A No. 6 Anker-Holth Cream Separator, capacity 600 pounds, donated by Anker-Holth Mfg. Co., Port Huron, Mich.

A M-2 Baltic Cream Separator, donated by the Empire Cream Separator Co., Bloomfield, N. J., capacity 300 pounds per hour.†

A No. 2 Primrose Cream Separator, donated by the International Harvester Company of America, San Francisco.†

	Ave. lbs. butter fat Actual	Credit
1st prize, J. W. Coppini, Ferndale	520.57	532.86
2nd " Bohnett Bros., Campbell	410.87	430.10
3rd " J. M. Christen, Pacheco	219.37	242.29

5. *For the highest average production of three cows in the same herd, two and one-half years to three and one-half years old at the beginning of the competition.*

A No. 15 De Laval Cream Separator, capacity 675 pounds, donated by the De Laval Dairy Supply Co., San Francisco.

	Ave. lbs. butter fat Actual	Credit
A. W. Morris & Sons Corp., Woodland	644.03	782.21

6. *For the highest production of butter fat during ten consecutive months by a cow entered in the Competition.*

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* Calf donated by N. B. Locke Co. turned over by Mr. Trigg to be sold at auction for the benefit of the Red Cross Society at University Farm Picnic, April 20, 1918.

† Prizes were turned over by donors to be sold at auction for the benefit of the Red Cross Society, at University Farm Picnic, April 20, 1918.

Five tons of Larrowe's Dried Beet Pulp offered by the Larrowe Milling Co., Los Angeles (provided, that if the winner of this prize consumed not less than one-half ton of Larrowe's Dried Beet Pulp in her ration during the record period, the quantity to be awarded shall be increased to fifteen tons).

	Ave. lbs. butter fat Actual	Credit
A. W. Morris & Sons Corp., Woodland, Miss Valley Mead De Kol Walker	819.42	966.92

C. Cash Prizes

7. *For the highest production of butter fat during ten consecutive months by five cows in a herd.*

Three prizes: $150 each for (*a*) pure-bred cows, (*b*) grade cows, (*c*) cows irrespective of their breeding, offered by the Country Life Department of the Sacramento Bee, Sacramento.

	Ave. lbs. butter fat Actual	Credit
(*a*) Pure-bred cows, A. W. Morris & Sons Corp., Woodland	698.40	789.65
(*b*) Grade cows, F. Stenzel, San Lorenzo	603.20	620.17
(*c*) Cows irrespective of their breeding, Iver Iversen, Arcata	583.19	583.19

8. *For the highest and next to the highest production of butter fat during ten consecutive months by a cow in the Imperial Valley.*

Two prizes, $25 and $15, offered by Barber & Thomson Co., Los Angeles.

	Ave. lbs. butter fat Actual	Credit
1st prize, F. H. Van Derpoel, El Centro, Fern's Silver Ray, J.	668.54	668.54
2nd " F. H. Van Derpoel, El Centro, Fern's Lowland Lassie, J.	441.04	441.04

9. *For the highest average production of butter fat by five cows in a grade herd, headed by a pure-bred sire, during each calendar month, November, 1916, to February, 1918, inclusive.*

A cash prize of $25 a month, donated by the Pacific Rural Press, San Francisco. Names of winners given on p. 176.

10. *For the highest production of butter fat for one year by herds belonging to a cow-testing association.*

Three prizes, $100 each, for herds of (*a*) 10 to 25 cows, (*b*) 26 to 50 cows, (*c*) over 50 cows, offered by the California Cultivator, Los Angeles.

	Ave. lbs. butter fat
(*a*) 10 to 25 cows, J. W. Coppini, Ferndale, 22 cows	510.09
(*b*) 26 to 50 cows, Iver Iversen, Arcata, 37 cows	498.73
(*c*) Over 50 cows, W. Terkelsen, Ferndale, 53 cows	420.46

11. *For the highest production of butter fat by a grade cow for each month during 1917.*

A cash prize of $10 a month, offered by McAlister & Sons, Chino. Names of winners given on p. 175.

12. *For the highest average production of butter fat by ten cows in a registered pure-bred herd, covering a period of ten months.*

Offered by C. L. Hughes, Sacramento.

		Ave. lbs. butter fat Actual	Credit
One prize, $100.	A. W. Morris & Sons Corp., Woodland	588.75	671.86

12A. *For the highest average production of butter fat during ten consecutive months by four cows in a Stanislaus County herd.*

Four prizes of $40, $30, $20, and $10, open to pure-breds and grade cows, offered by Modesto Creamery, Modesto.

			Ave. lbs. butter fat Actual	Credit
1st prize,	$40.	J. M. Bomberger, Modesto	497.69	497.69
2nd "	30.	Guy H. Miller, Modesto	464.47	464.67
3rd "	20.	J. M. Bomberger, Modesto	364.54	420.37
4th "	10.	Guy H. Miller, Modesto	372.19	411.38

12B. *For the highest average production of butter fat by a herd in the Ferndale Cow-Testing Association that was not tested prior to January 1, 1917.*

A pure-bred Jersey bull calf out of a Register of Merit cow, offered by J. W. Coppini, Ferndale, California.

	Ave. lbs. butter fat
S. J. Damon, Ferndale	365.0

D. Trophies and Gold Medals

13. *For the highest production of milk during ten consecutive months by a cow irrespective of her breeding.*

A silver trophy donated by Scott, Magner & Miller, San Francisco.

	Lbs. milk
A. W. Morris & Sons Corp., Woodland, Hartog Creamelle De Kol	24,201.7

14. *For the highest record of a registered Jersey cow and by ten cows in a grade herd sired by a registered Jersey bull.*

Two cups, offered by the American Jersey Cattle Club, New York City.

		Ave. lbs. butter fat Actual	Credit
1st prize,	University of California (Interested Jap's Santa)	703.37	759.64
2nd "	G. E. Trigg, Ferndale	557.36	580.54

15. *For the highest records by a registered Guernsey cow and by ten cows in a grade herd, sired by a registered Guernsey bull.*

Two trophies offered by the American Guernsey Cattle Club, Peterboro.

		Ave. lbs. butter fat Actual	Credit
1st prize,	W. H. Dupee, Santee (Jesebel of Edgemoor)	632.14	783.85
2nd "	Hollow-Hill Farm, Colton	478.34	494.35

16. *For the highest records by a registered Holstein cow, and by ten cows in a grade herd, sired by a registered Holstein bull.*

Two silver cups offered by the Holstein-Friesian Assn. of America, Brattleboro.

		Ave. lbs. butter fat Actual	Credit
1st prize,	A. W. Morris & Sons Corp., Woodland (Miss Valley Mead De Kol Walker)	819.42	966.92
2nd "	F. Stenzel, San Lorenzo	540.34	573.58

16A. *For the highest record by a registered Ayrshire cow.*

A silver trophy, offered by Pacific Rural Press, San Francisco, Cal.

	Ave. lbs. butter fat Actual	Credit
E. B. McFarland, San Mateo (Willowmoor Vesta 4th)	612.06	661.02

17. *For the largest production of butter fat during ten consecutive months by a cow bred by the owner.*

A gold medal awarded by the College of Agriculture of the University of California.*

	Ave. lbs. butter fat Actual	Credit
A. W. Morris & Sons Corp., Woodland (Miss Valley Mead De Kol Walker)	819.42	966.92

18. *For the largest production of butter fat during ten consecutive months by five cows in a herd, bred by the owner.*

A gold medal awarded by the College of Agriculture of the University of California.*

	Ave. lbs. butter fat Actual	Credit
A. W. Morris & Sons Corp., Woodland	791.86	851.52

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* Cost defrayed from donations to prize fund received in excess of cash prizes offered in the competition.